

**STREAM-FLOW MEASUREMENTS AT SELECTED GAGING
STATIONS IN THE IOWA AND DES MOINES RIVER BASINS AND
DEVELOPMENT OF STAGE-DISCHARGE RELATIONSHIPS**
Sampling Period: 3 September 2002 - 18 April 2003

by
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Submitted to
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ABSTRACT

Field velocity measurements were taken four times at fifteen stream gaging sites within the Iowa River and Des Moines River basins during 3 September 2002 and 18 April 2003. Using the historical data available and the data collected in this study, log-linear stage-discharge relationships, as well as a rating table, were developed for each station.

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I. INTRODUCTION

Establishment of field-data based, reliable, stage-discharge relationships for any stream is indispensable in predicting discharges at different river stages. The U.S. Army Corps of Engineers, Rock Island District (USACE-MVR) maintains and operates many stream-gaging stations along the Iowa River and Des Moines River basins and routinely collects stream-stage information through the GEOS satellite system. IIHR – Hydroscience & Engineering, The University of Iowa, received a subcontract from the USACE-MVR through Missman Stanley & Associates, P.C., in Rock Island, IL to collect four sets of velocity data at fifteen different gaging stations and to establish the best stage-discharge relationship for each station.

The field stream-flow measurements were conducted at six gaging stations for the Iowa River basin and nine stations for the Des Moines River basin, including the following stations:

Iowa River basin:

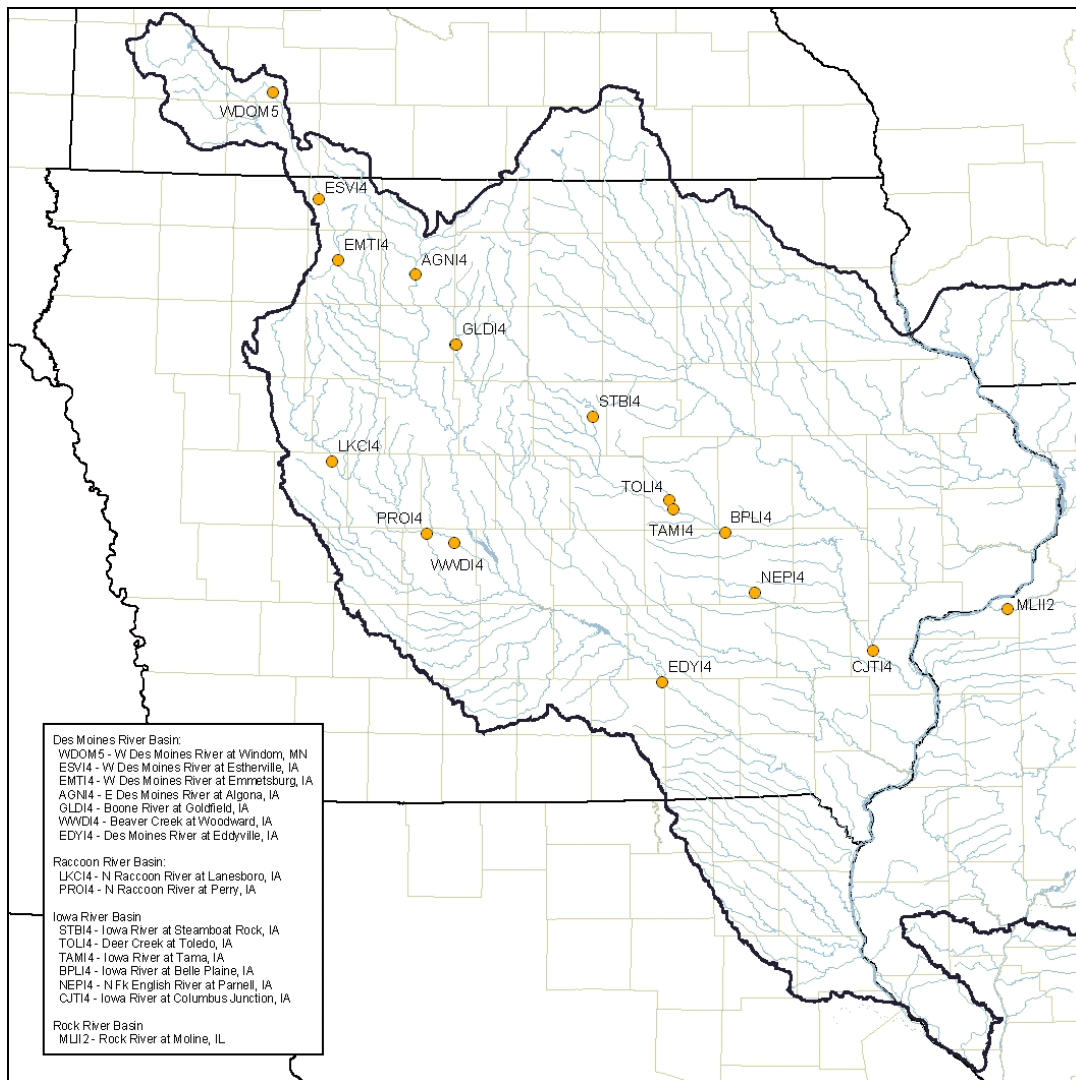
1. Iowa River at Steamboat Rock, Iowa (STBI4);
2. Deer Creek Near Toledo, Iowa (TOLI4);
3. Iowa River at Tama, Iowa (TAMI4);
4. Iowa River near Belle Plaine, Iowa (BPLI4);
5. North Fork English River near Parnell, Iowa (NEPI4); and
6. Iowa River at Columbus Junction, Iowa (CJTI4)

Des Moines River basin:

1. West Fork Des Moines River near Windom, Minnesota (WDOM5);
2. Des Moines River at Estherville, Iowa (ESVI4);
3. Des Moines River at Emmetsburg, Iowa (EMTI4);
4. East Fork Des Moines River at Algona, Iowa (AGNI4);
5. Boone River near Goldfield, Iowa (GLDI4);
6. Beaver Creek near Woodward, Iowa (WWDI4);
7. North Raccoon River near Lanesboro, Iowa (LKCI4);

8. North Raccoon River near Perry, Iowa (PROI4); and
9. Des Moines River near Eddyville, Iowa (EDYI4)

Each gaging station is identified with the station ID and their locations are shown in figure 1. In order to make the index search easier, station descriptions are given in alphabetical order of the station ID in this report instead of the river basins. At each station, four separate measurements were taken during the period from 3 September 2002 to 18 April 2003.



**Figure 1 Location map identifying fifteen stream-flow gaging stations
(Note: MLI2 on the Rock River in Illinois was not included)**

All the raw velocity data collected were stored in the spreadsheet and total discharges were computed using MS Excel 2000, as exemplified in table 1. Appendix I lists all the spreadsheets generated for each velocity measurement campaign. Tables 2(a) through 2(c) list the date and the time of measurements, information on gage height (GH), the width of the stream flow, the total flow area, and the calculated discharge (Q).

TAMI4_9-25-02 (TRIP 2)												
Gage = 8.91' at 08:15												
W = 184'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0.0											
1.000	7.4	7.4	0.40	0.6	1	21.0	0.08	0.08	2.96	0.23	360	-270
1.000	14.8	7.4	0.30	0.6	4	24.0	0.19	0.19	2.22	0.42	360	-270
1.000	22.2	7.4	0.35	0.6	20	30.3	0.66	0.66	2.59	1.72	360	-270
1.000	29.6	7.4	0.70	0.6	20	22.8	0.87	0.87	5.18	4.52	360	-270
1.000	37.0	7.4	0.90	0.6	20	20.8	0.95	0.95	6.66	6.35	360	-270
1.000	44.4	7.4	0.85	0.6	20	19.3	1.03	1.03	6.29	6.45	360	-270
1.000	51.8	7.4	0.80	0.6	20	23.0	0.87	0.87	5.92	5.13	360	-270
1.000	59.2	7.4	0.65	0.6	20	22.3	0.89	0.89	4.81	4.29	360	-270
1.000	66.6	7.4	0.70	0.6	20	20.9	0.95	0.95	5.18	4.92	360	-270
1.000	74.0	7.4	0.35	0.6	20	24.3	0.82	0.82	2.59	2.13	360	-270
0.707	81.4	7.4	0.20	0.6	20	19.6	1.01	1.01	1.48	1.06	45	45
1.000	88.8	7.4	2.10	0.6	20	33.5	1.33	1.33	15.54	20.74	360	-270
1.000	96.2	7.4	2.90	0.6	20	21.2	2.10	2.10	21.46	45.03	360	-270
0.985	103.6	7.4	3.40	0.8	20	21.6	2.06	2.24	25.16	55.43	350	-260
0.985	103.6	0.0	3.40	0.2	20	18.4	2.41	0.00	0.00	0.00	350	-260
1.000	111.0	7.4	3.20	0.8	20	23.6	1.89	2.09	23.68	49.61	360	-270
1.000	111.0	0.0	3.20	0.2	20	19.3	2.30	0.00	0.00	0.00	360	-270
1.000	118.4	7.4	3.10	0.8	20	23.5	1.89	2.13	22.94	48.84	360	-270
1.000	118.4	0.0	3.10	0.2	20	18.8	2.36	0.00	0.00	0.00	360	-270
1.000	125.8	7.4	3.60	0.8	20	22.6	1.97	2.09	26.64	55.55	360	-270
0.985	125.8	0.0	3.60	0.2	20	20.2	2.20	0.00	0.00	0.00	350	-260
0.985	133.2	7.4	3.90	0.8	20	25.7	1.73	2.02	28.86	57.54	350	-260
0.985	133.2	0.0	3.90	0.2	20	19.2	2.31	0.00	0.00	0.00	350	-260
0.985	140.6	7.4	4.10	0.8	20	24.4	1.83	2.13	30.34	63.54	350	-260
0.985	140.6	0.0	4.10	0.2	20	18.3	2.43	0.00	0.00	0.00	350	-260
0.985	148.0	7.4	4.30	0.8	20	21.1	2.11	2.18	31.82	68.39	350	-260
0.985	148.0	0.0	4.30	0.2	20	19.7	2.26	0.00	0.00	0.00	350	-260
1.000	155.4	7.4	4.00	0.8	20	26.3	1.69	1.52	29.60	45.07	360	-270
1.000	155.4	0.0	4.00	0.2	20	33.1	1.35	0.00	0.00	0.00	360	-270
0.906	162.8	7.4	4.00	0.8	20	65.2	0.69	0.54	29.60	14.48	25	65
0.906	162.8	0.0	4.00	0.2	14	84.0	0.39	0.00	0.00	0.00	25	65
-0.766	170.2	7.4	4.20	0.8	4	80.0	0.13	0.10	31.08	-2.33	140	-50
-0.766	170.2	0.0	4.20	0.2	1	44.5	0.07	0.00	0.00	0.00	140	-50
-1.000	177.6	7.4	2.30	0.6	20	85.6	0.53	0.53	17.02	-9.07	180	-90
	184.0											
										379.62	550.03	
Note: Pigmy for W = 0 - 81.4' and AA type for W = 88.8' - 177.6'												

Table 1 Sample spreadsheet developed for analyzing raw data to obtain discharge

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	AGNI4								
Location	Algona, IA								
River	E. Fork/DMR								
Trip No.	IIHR1	9/5/02	12:00	7.26	7.38	0.12	115.0	339.0	126.0
	IIHR2	9/26/02	10:00	6.95	7.00	0.05	113.0	316.3	32.6
	IIHR3	10/30/02	13:00	7.54	7.61	0.07	116.0	362.0	210.0
5" Ice	IIHR4	12/12/02	15:00	7.21	7.21	0.00	120.0	394.6	100.4
Station ID	BPLI4								
Location	Belle Plaine, IA								
River	Iowa River								
Trip No.	IIHR1	9/3/02	16:15	7.00	6.81	-0.19	180.0	547.2	869.2
	IIHR2	9/24/02	14:45	6.61	6.55	-0.06	205.0	544.5	758.4
	IIHR3	11/1/02	12:00	6.86	6.88	0.02	207.0	622.4	874.3
	IIHR4	12/6/02	13:00	6.27	6.38	0.11	174.0	398.3	342.5
Station ID	CJTI4								
Location	Columbus Jct, IA								
River	Iowa River								
Trip No.	IIHR1	9/12/02	19:00	9.63			913.0	2072.3	3060.1
	IIHR2	10/9/02	16:30	11.21			993.0	3739.5	7291.9
	IIHR3	11/7/02	15:50	10.19			925.0	2271.8	4076.7
	IIHR4	12/18/02	16:00	9.89			920.0	2119.3	3753.8
Station ID	EDYI4								
Location	Eddyville, IA								
River	Des Moines River								
Trip No.	IIHR1	9/12/02	13:15	48.17			460.0	1064.6	1086.4
	IIHR2	10/14/02	11:20	51.39			532.0	2718.3	5782.3
	IIHR3	11/7/02	11:00	49.87			515.0	1801.6	3369.1
	IIHR4	12/5/02	11:00	49.78			480.0	1658.4	3261.6
Station ID	EMTI4								
Location	Emmetsburg, IA								
River	Des Moines River								
Trip No.	IIHR1	9/5/02	15:30	9.20	9.13	-0.07	113.0	192.2	181.3
	IIHR2	9/26/02	13:15	8.51	8.44	-0.07	34.0	34.8	55.0
	IIHR3	10/30/02	10:30	9.49	9.30	-0.19	116.0	199.8	212.3
	IIHR4	4/17/03	16:00	9.77	9.74	-0.03	132.0	193.7	343.9

Table 2(a) Summary of field data collected at Stations AGNI4, BPLI4, CJTI4, EDYI4, and EMTI4 in the Iowa River and the Des Moines River Basins between September 2002 and April 2003

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	ESVI4								
Location	Estherville, IA								
River	Des Moines River								
Trip No.	IIHR1	9/5/02	18:00	2.15			40.0	36.3	70.6
	IIHR2	9/26/02	15:00	2.05			53.0	48.9	51.8
	IIHR3	10/30/02	9:00	2.67			66.0	72.1	202.1
	IIHR4	12/11/02	14:00	2.27			40.3	40.3	93.0
Station ID	GLDI4								
Location	Goldfield, IA								
River	Boone River								
Trip No.	IIHR1	9/5/02	9:00	7.80	7.70	-0.10	79.5	64.4	42.0
	IIHR2	9/25/02	17:00	7.17	7.33	0.16	49.0	21.9	15.2
	IIHR3	12/12/02	16:00	8.05	8.38	0.33	83.0	90.2	66.0
	IIHR4	4/18/03	10:00	9.50	9.48	-0.02	87.0	211.7	244.9
Station ID	LKCI4								
Location	Lanesboro, IA								
River	N Raccoon River								
Trip No.	IIHR1	9/11/02	14:00	8.22	8.12	-0.10	97.0	119.3	126.9
	IIHR2	10/9/02	9:50	9.50	9.46	-0.04	202.0	327.4	595.1
	IIHR3	10/31/02	10:00	8.90	8.89	-0.01	169.0	261.5	424.7
	IIHR4	11/14/02	16:30	8.51			84.0	173.0	259.9
Station ID	NEPI4								
Location	Parnell, IA								
River	N.F. English River								
Trip No.	IIHR1	9/3/02	12:00	14.08	14.10	0.02	60.5	48.8	28.4
	IIHR2	9/24/02	12:30	14.22	14.20	-0.02	60.0	54.4	36.6
	IIHR3	11/1/02	14:30	14.71	14.77	0.06	92.0	95.8	114.0
	IIHR4	12/13/02	15:30	14.61	14.66	0.05	92.0	85.3	52.8
Station ID	PROI4								
Location	Perry, IA								
River	N. Raccoon River								
Trip No.	IIHR1	9/11/02	17:00	4.57	4.30	-0.27	139.0	234.6	259.4
	IIHR2	10/8/02	15:15	7.79	7.71	-0.08	206.0	841.5	2036.3
	IIHR3	10/31/02	12:20	5.63	5.67	0.04	199.0	472.0	865.6
	IIHR4	11/14/02	14:00	5.10	5.04	-0.06	160.0	382.3	512.1

Table 2(b) Summary of field data collected at Stations ESVI4, GLDI4, LKCI4, NEPI4, and PROI4 in the Iowa River and the Des Moines River Basins between September 2002 and April 2003

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	STBI4								
Location	Steamboat Rock, IA								
River	Iowa River								
Trip No.	IIHR1	9/4/02	15:45	5.64	5.62	-0.02	140.0	204.4	366.8
	IIHR2	9/25/02	15:00	5.58	5.58	0.00	90.0	99.2	227.7
	IIHR3	10/31/02	17:00	5.91	5.87	-0.04	110.0	196.3	411.1
	IIHR4	12/10/02	13:00	5.50			87.0	83.9	193.9
Station ID	TAMI4								
Location	Tama, IA								
River	Iowa River								
Trip No.	IIHR1	9/4/02	9:00	9.23	9.11	-0.12	183.0	381.1	616.8
	IIHR2	9/25/02	8:15	8.91	8.92	0.01	184.0	379.6	550.0
	IIHR3	11/1/02	10:25	9.54	9.53	-0.01	189.0	486.8	830.9
	IIHR4	11/15/02	14:00	9.07	9.08	0.01	185.0	410.9	625.8
Station ID	TOLI4								
Location	Toledo, IA								
River	Deer Creek								
Trip No.	IIHR1	9/4/02	11:00	4.17			45.2	16.3	11.3
	IIHR2	9/25/02	11:00	4.39	4.41	0.02	48.0	25.5	8.6
	IIHR3	4/17/03	10:15	4.22	4.21	-0.01	47.0	17.5	11.0
	IIHR4	4/18/03	15:00	4.21	4.22	0.01	38.0	13.2	10.2
Station ID	WDOM5								
Location	Windom, MN								
River	Des Moines River								
Trip No.	IIHR1	9/6/02	9:30	11.78	11.75	-0.03	75.0	526.8	98.6
	IIHR2	9/27/02	11:30	11.29	11.26	-0.03	74.0	472.5	13.2
	IIHR3	10/29/02	17:15	12.32	12.25	-0.07	75.0	550.5	219.2
8" Ice	IIHR4	12/12/02	10:15	11.90	11.90	0.00	110.0	260.2	94.1
Station ID	WWDI4								
Location	Woodward, IA								
River	Beaver Creek								
Trip No.	IIHR1	9/12/02	9:00	10.62	10.61	-0.01	22.0	4.1	0.9
	IIHR2	10/8/02	12:30	11.89	11.56	-0.33	59.0	57.9	71.7
	IIHR3	10/31/02	14:00	11.29	11.23	-0.06	53.0	38.3	37.1
	IIHR4	11/14/02	12:00	11.13	11.05	-0.08	51.0	28.9	22.2

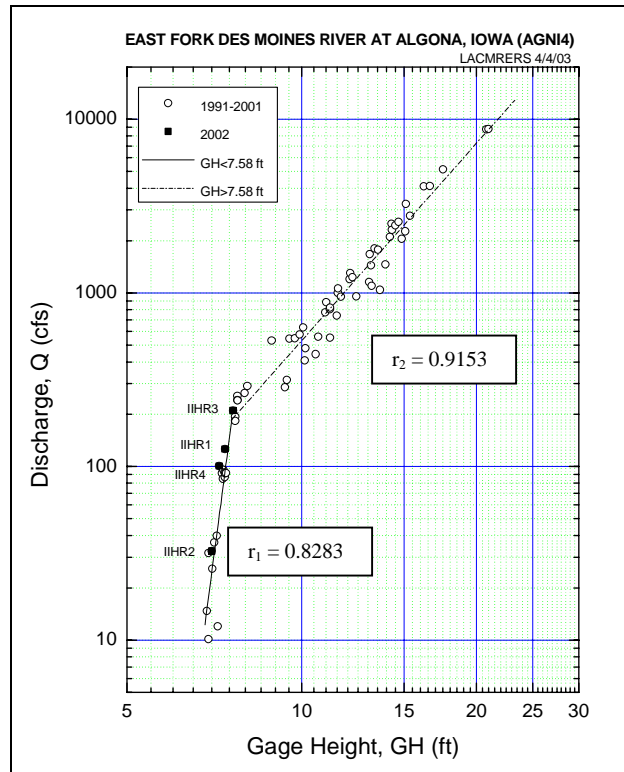
Table 2(c) Summary of field data collected at Stations STBI4, TAMI4, TOLI4, WDOM5, and WWDI4 in the Iowa River and the Des Moines River Basins between September 2002 and April 2003

II. DEVELOPMENT OF STAGE-DISCHARGE RELATIONSHIPS

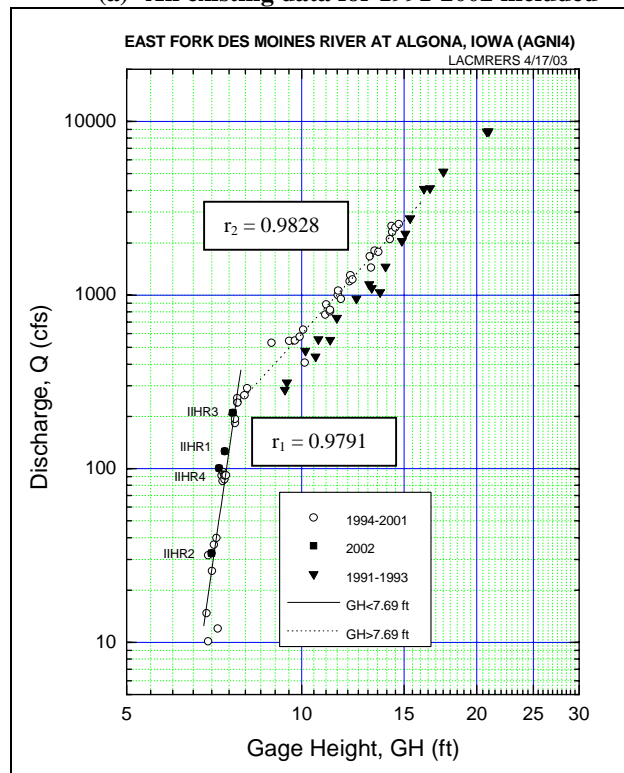
In order to establish the best stage-discharge relationships for each gaging station, historical data provided by the USACE-MVR, as well as four new data sets collected in this study, were first plotted on a log-log graph using ORIGIN graphics software (Origin Pro Version 7). Segment-wise log-linear relationships (power-law relationships) were then sought. An intersecting boundary value between two log-linear lines was first determined by manually reviewing the plot. The best-fit lines were then determined by correlation coefficients. The correlation coefficient of the log-linear regression equation, r , for each data set was determined using the following relationship:

$$r = \frac{n \sum [\{\log(GH)\} * \{\log(Q)\}] - \{\sum \log(GH)\} * \{\sum \log(Q)\}}{\sqrt{[n \sum \{\log(GH)\}^2 - \{\sum \log(GH)\}^2] * [n \sum \{\log(Q)\}^2 - \{\sum \log(Q)\}^2]}} \quad (1)$$

where n = number of data points; GH = gage height (ft); and Q = discharge (cfs). For each station, correlation coefficients were carefully reviewed to further improve the stage-discharge relationships. For example, at AGNI4, the entire data set available was plotted, as shown in figure 2(a). The correlation coefficients for the lower and upper gage heights were found to be 0.8283 and 0.9153, respectively. In order to find the effect of the Great Flood of '93, the existing data from 1991 to 1993 were isolated and excluded in the analysis, as shown in figure 2(b). The correlation coefficients were significantly improved to 0.9791 and 0.9828 from 0.8283 and 0.9153. As can be seen in figure 2(b), the discharge data for approximately $GH = 9$ ft ~15 ft for the period between 1991 and 1993 can clearly be isolated in improving the correlation coefficients. A similar investigation on the Great Flood of '93 was conducted for the other stations. However, no such effects were found in any other stations.



(a) All existing data for 1991-2002 included



(b) Data for 1991-1993 isolated

Figure 2 Comparison of two log-linear stage-discharge relationships developed for two different sets of data for AGNI4

During the regression analysis, apparent outliers were identified and excluded from the analysis. Outliers were found at three stations (BPLI4, GLDI4, and STBI4). In particular, at STBI4 a significant number of the data that were collected from 1992 to 1995 was found to be outliers, as can be seen in figure 3. All the outliers identified in the present study were marked in red in the spreadsheets so that they would not be used in the future analyses. It should be noted that all the spreadsheets generated for the historical raw data, discharges calculated, and the rating table were submitted to the USACE-MVR.

The best-fit power-law relationships that were developed for each station in the present study are shown in tables 3(a) and 3(b). Correlation coefficients in these tables are seen to be very high, ranging from $r = 0.8628$ at NEPI4 for the lower flow regime in which $GH < 14.66$ ft to $r = 0.9976$ for the higher flow regime in which $GH \geq 12.39$ ft.

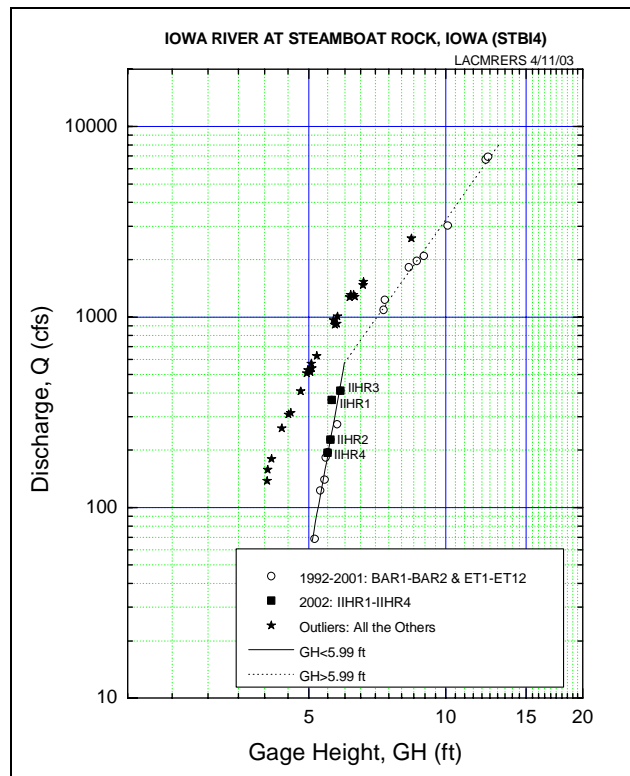


Figure 3 Outliers found in log-linear stage-discharge plots at STBI4

No	Station ID Location River	Data Period	Range of Gage Height (GH)	Regression Equations	Correla- tion Coeff
1	AGNI4 Algona, IA E. Fork/DMR	1991-2002	GH<7.58 ft GH≥7.58 ft	$Q=10^{-20.077*GH^{25.409}}$ $Q=10^{-1.049*GH^{3.775}}$ <i><u>Do not use these eqns!</u></i>	0.8283 0.9791
1A	AGNI4 Algona, IA E. Fork/DMR	1994-2002	GH<7.69 ft GH≥7.69 ft	$Q=10^{-17.936*GH^{22.903}}$ $Q=10^{-0.913*GH^{3.690}}$ <i><u>Use these eqns!</u></i>	0.9153 0.9828
2	BPLI4 Belle Plaine, IA Iowa River	1987-2002	GH<6.81 ft 6.81 ft≤GH<15.66 ft GH≥15.66 ft	$Q=10^{-1.433*GH^{5.210}}$ $Q=10^{0.757*GH^{2.582}}$ $Q=10^{-6.623*GH^{8.759}}$	0.9723 0.9938 0.9507
3	CJTI4 Columbus Jct, IA Iowa River	1995-2002	GH<12.39 ft GH≥12.39 ft	$Q=10^{-1.299*GH^{4.851}}$ $Q=10^{0.935*GH^{2.807}}$	0.9821 0.9976
4	EDYI4 Eddyville, IA Des Moines River	1990-2002	GH<50.57 ft 50.57 ft≤GH<55.08 ft GH≥55.08 ft	$Q=10^{-53.762*GH^{33.667}}$ $Q=10^{-20.493*GH^{14.142}}$ $Q=10^{-8.903*GH^{7.485}}$	0.9234 0.9627 0.9763
5	EMTI4 Emmetsburg, IA Des Moines River	1995-2003	GH<10.56 ft GH≥10.56 ft	$Q=10^{-7.426*GH^{10.148}}$ $Q=10^{-0.316*GH^{3.201}}$	0.9536 0.9920
6	ESVI4 Estherville, IA Des Moines River	1996-2002	GH<2.45 ft 2.45 ft≤GH<4.74 ft GH≥4.74 ft	$Q=10^{-0.483*GH^{6.946}}$ $Q=10^{1.028*GH^{3.072}}$ $Q=10^{2.093*GH^{1.496}}$	0.9916 0.9930 0.9967
7	GLDI4 Goldfield, IA Boone River	1995-2003	GH<9.35 ft GH≥9.35 ft	$Q=10^{-10.439*GH^{13.278}}$ $Q=10^{-1.037*GH^{3.592}}$	0.9229 0.9941
8	LKCI4 Lanesboro, IA N Raccoon River	1995-2001	GH<8.85 ft 8.85 ft≤GH<11.48 ft GH≥11.48 ft	$Q=10^{-12.647*GH^{16.079}}$ $Q=10^{-2.964*GH^{5.852}}$ $Q=10^{-0.503*GH^{3.530}}$	0.9154 0.9651 0.9961
9	NEPI4 Parnell, IA N.F. English River	1995-2002	GH<14.66 ft 14.66 ft≤GH<16.19 ft GH≥16.19 ft	$Q=10^{-35.041*GH^{31.818}}$ $Q=10^{-17.075*GH^{16.411}}$ $Q=10^{-3.622*GH^{5.286}}$	0.8628 0.9876 0.9860
10	PROI4 Perry, IA N. Raccoon River	1995-2002	GH<5.65 ft GH≥5.65 ft	$Q=10^{-0.508*GH^{4.660}}$ $Q=10^{1.235*GH^{2.342}}$	0.9759 0.9938

Table 3(a) Stage-discharge relationships developed for Station Nos. 1 through 10

No	Station ID Location River	Data Period	Range of Gage Height (GH)	Regression Equations	Correla- tion Coeff
11	STBI4 Steamboat Rock, IA Iowa River	1992-2002	GH<5.99 ft	$Q=10^{-7.408*GH^{13.078}}$	0.9459
			GH≥5.99 ft	$Q=10^{-0.135*GH^{3.376}}$	0.9961
12	TAMI4 Tama, IA Iowa River	1993-2002	GH<9.68 ft	$Q=10^{-3.397*GH^{6.389}}$	0.8983
			9.68 ft≤GH<17.62 ft	$Q=10^{-0.480*GH^{3.430}}$	0.9875
			GH≥17.62 ft	$Q=10^{-2.304*GH^{4.894}}$	0.9229
13	TOLI4 Toledo, IA Deer Creek	1997-2003	GH<4.90 ft	$Q=10^{-7.785*GH^{14.073}}$	0.9062
			GH≥4.90 ft	$Q=10^{-0.805*GH^{3.961}}$	0.9761
14	WDOM5 Windom, MN Des Moines River	1995-2002	GH<12.01 ft	$Q=10^{-45.910*GH^{44.505}}$	0.9217
			12.01 ft≤GH<14.44 ft	$Q=10^{-7.457*GH^{8.886}}$	0.9579
			GH≥14.44 ft	$Q=10^{-3.001*GH^{5.043}}$	0.9885
15	WWDI4 Woodward, IA Beaver Creek	1995-2002	GH<11.52 ft	$Q=10^{-61.171*GH^{59.393}}$	0.8745
			11.52 ft≤GH<14.42 ft	$Q=10^{-9.125*GH^{10.356}}$	0.9495
			GH≥14.42 ft	$Q=10^{-1.747*GH^{3.990}}$	0.9984

Table 3(b) Stage-discharge relationships developed for Station Nos. 11 through 15

III. DESCRIPTION OF INDIVIDUAL STREAM-GAGING STATIONS AND PRESENTATION OF PROPOSED RATING TABLES

In this chapter, a general description of each station that was downloaded from the USACE-MVR web site (<http://www.mvr.usace.army.mil/>), a few site photos, the stage-discharge plot, and the rating table developed are presented for each gaging station.

1. EAST FORK DES MOINES RIVER NEAR ALGONA, IA (AGNI4)

- Gage Description - AGNI4 - E. Des Moines River near Algona, IA
- Stream = East Fork Des Moines River
- Gage Zero = 1098.74 feet NGVD (1929)
- Flood Stage = 14.00 feet
- Record Stage = 22.65 feet date 04-01-93
- Lat 43°04'44" - Long 94°14'10"
- Drainage Area = 884.0 sq. mi.
- River Mile = 374.4
- Location of Gage = on left bank at downstream side of bridge on US Highway 169, at north edge of Algona, and 5.5 miles downstream from Black Cat Creek.



River-Stage Gaging Station



Downstream View

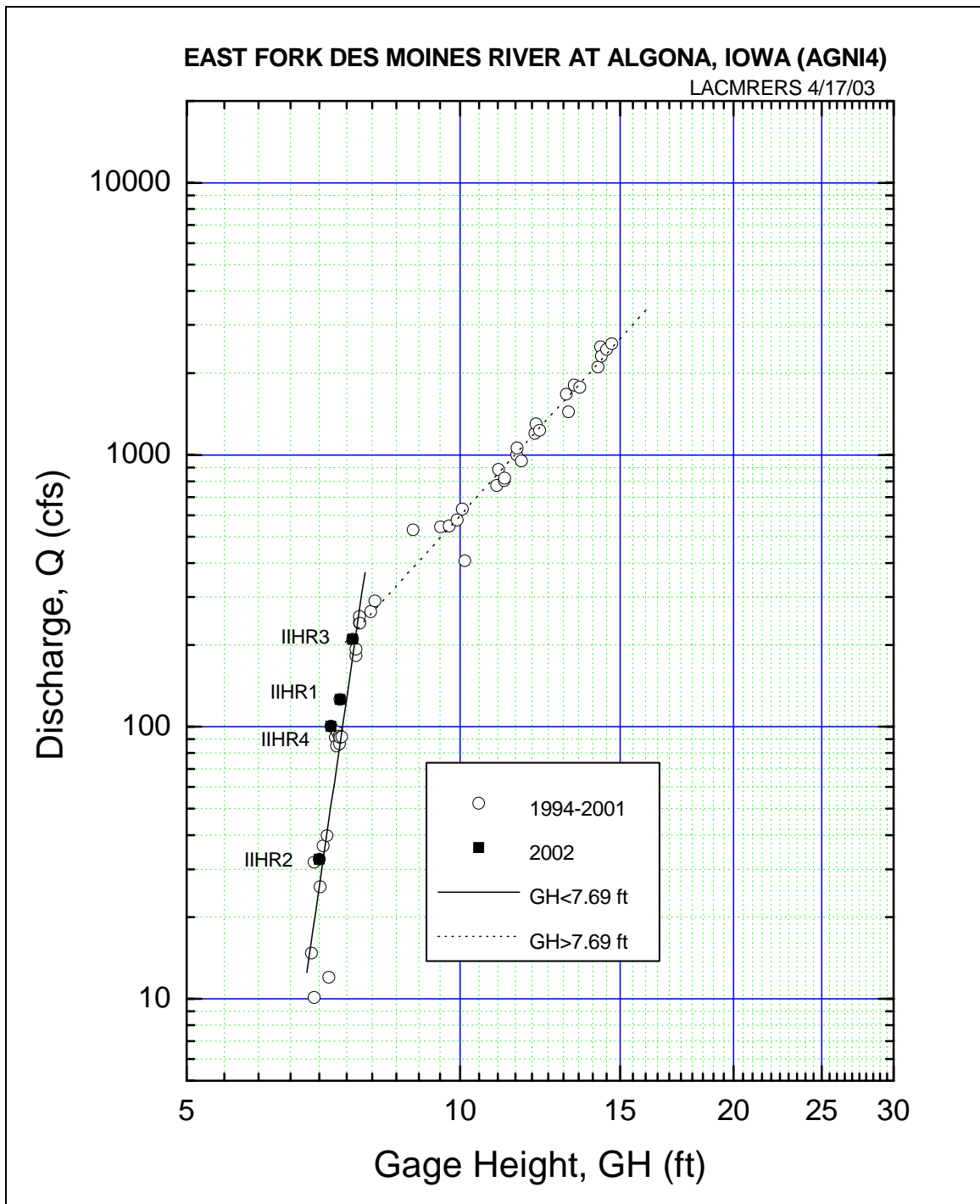


Figure 4 Log-linear stage-discharge relationships developed for AGNI4
(Note: the data for 1991-1993 were excluded)

DATE: 4/4/2003

AGNI4 - EAST FORK DES MOINES RIVER NEAR ALGONA, IOWA

RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 7.58 FT $Q=10^{-20.077*GH^{25.409}}$

EQUATION 2: GH > 7.58 FT $Q=10^{-1.049*GH^{3.775}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
6	0.5	0.8	1.1	1.7	2.6	3.8	5.6	8.2	11.9	17.3	
7	24.9	35.7	50.9	72.3	102	144	201	198	208	219	204
8	229	240	252	263	276	288	301	315	328	343	128
9	357	373	388	405	421	438	456	474	493	512	175
10	532	552	573	595	617	640	663	687	711	737	230
11	763	789	816	844	873	902	932	963	994	1026	297
12	1059	1093	1127	1162	1199	1235	1273	1312	1351	1391	374
13	1433	1475	1518	1561	1606	1652	1699	1746	1795	1845	462
14	1895	1947	1999	2053	2108	2164	2220	2278	2337	2398	564
15	2459	2521	2585	2650	2716	2783	2851	2921	2992	3064	678
16	3137	3212	3288	3365	3444	3524	3605	3688	3772	3857	807
17	3944	4032	4122	4213	4306	4400	4496	4593	4692	4792	950
18	4894	4997	5102	5209	5317	5427	5539	5652	5767	5884	1108
19	6002	6122	6244	6368	6493	6620	6749	6880	7013	7148	1282
20	7284	7423	7563	7705	7850	7996	8144	8294	8447	8601	1473
21	8757	8916	9076	9239	9404	9571	9740	9911	10085	10261	1681
22	10439	10619	10801	10986	11173	11363	11555	11749	11945	12144	1907
23	12346	12550	12756	12965	13176	13390	13606	13825	14047	14271	2152
24	14498	14727	14959	15194	15431	15671	15914	16160	16408	16659	2415
25	16913	17170	17430	17692	17958	18226	18497	18771	19049	19329	2699
26	19612	19898	20188	20480	20776	21074	21376	21681	21989	22301	3003
27	22615	22933	23254	23578	23906	24237	24572	24909	25250	25595	3328
28	25943										

Table 4 Rating table developed for AGNI4

2. IOWA RIVER NEAR BELLE PLAINE, IA (BPLI4)

- Gage Description - BPLI4 - Iowa River near Belle Plaine, IA
- Stream = Iowa River
- Gage Zero = 749.82 feet NGVD (1929)
- Flood Stage = 14.50 feet
- Record Stage = 18.74 feet Date 07-11-93
- Lat 41°51'20" - Long 92°14'20"
- Drainage Area = 2,455 sq. mi.
- River Mile = 154.0
- Location of Gage = on right bank 5 ft upstream from bridge on State Highway 21, 1.0 mi downstream from Salt Creek, 1.1 mi downstream from Walnut Creek, 2.7 mi south of Belle Plaine, and at mile 159.0.



River-Stage Gaging Station



Downstream View

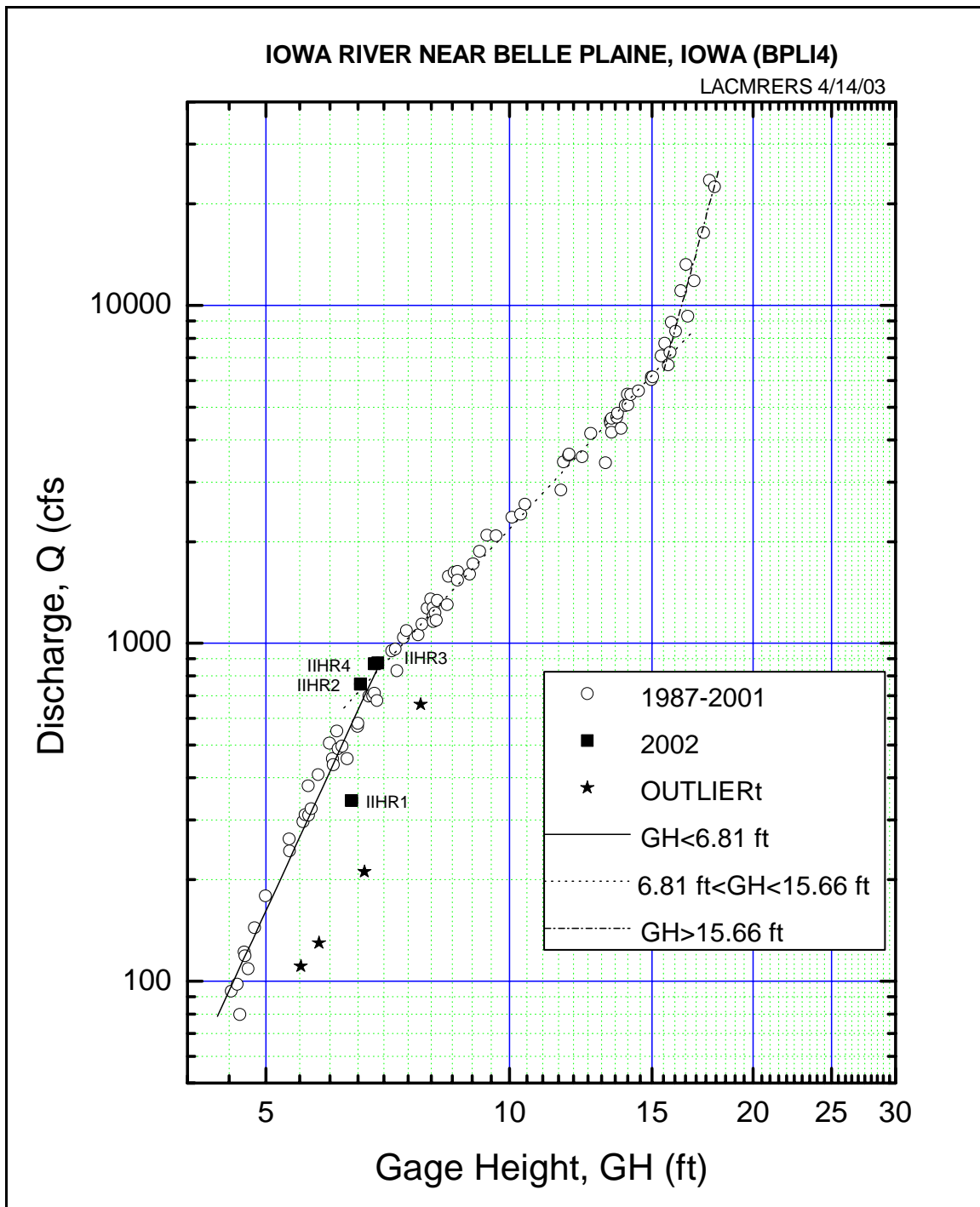


Figure 5 Log-linear stage-discharge relationships developed for BPLI4

DATE: 5/5/2003

BPLI4 - IOWA RIVER NEAR BELLE PLAINE, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH< 6.81 FT $Q=10^{-1.433*GH^{5.210}}$

EQUATION 2: 6.81 FT<GH<15.66 FT $Q=10^{0.757*GH^{2.582}}$

EQUATION 3: GH>15.66 FT $Q=10^{-6.623*GH^{8.759}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
4	50.6	57.5	65.2	73.7	83.1	93.4	105	117	131	146	
5	162	179	198	219	241	266	292	320	350	383	256
6	418	456	496	539	585	634	687	743	802	837	451
7	869	902	935	969	1003	1039	1075	1112	1149	1188	358
8	1227	1267	1308	1349	1392	1435	1479	1524	1569	1616	436
9	1663	1711	1760	1810	1860	1912	1964	2018	2072	2127	520
10	2183	2240	2297	2356	2415	2476	2537	2599	2663	2727	609
11	2792	2858	2925	2993	3062	3131	3202	3274	3347	3420	703
12	3495	3571	3647	3725	3804	3884	3964	4046	4129	4213	802
13	4297	4383	4470	4558	4647	4737	4828	4921	5014	5108	906
14	5204	5300	5398	5496	5596	5697	5799	5902	6006	6112	1015
15	6218	6326	6435	6545	6656	6768	6881	7110	7517	7944	2174
16	8392	8863	9357	9875	10419	10989	11586	12212	12867	13554	5880
17	14273	15025	15812	16636	17497	18398	19340	20324	21352	22425	9274
18	23547	24718	25940	27215	28546	29934	31381	32890	34463	36102	14263
19	37810	39589	41442	43371	45379	47469	49645	51908	54261	56709	21445
20	59255	61901	64651	67508	70478	73562	76765	80091	83544	87129	31594
21	90849										

Table 5 Rating table developed for BPLI4

3. IOWA RIVER NEAR COLUMBUS JUNCTION, IA (CJT14)

- Gage Description - CJT14 - Iowa River near Columbus Junction, IA
- Stream = Iowa River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°16'45" - Long 91°20'44"
- Drainage Area = 12,261 sq. mi.
- River Mile = 28.6
- Location of Gage = on right bank 15 feet downstream from bridge on State Highway 92, 0.5 mile downstream Cedar River, and 0.4 mile east of Columbus Junction, IA.



River-Stage Gaging Station



Bridge over the Iowa River

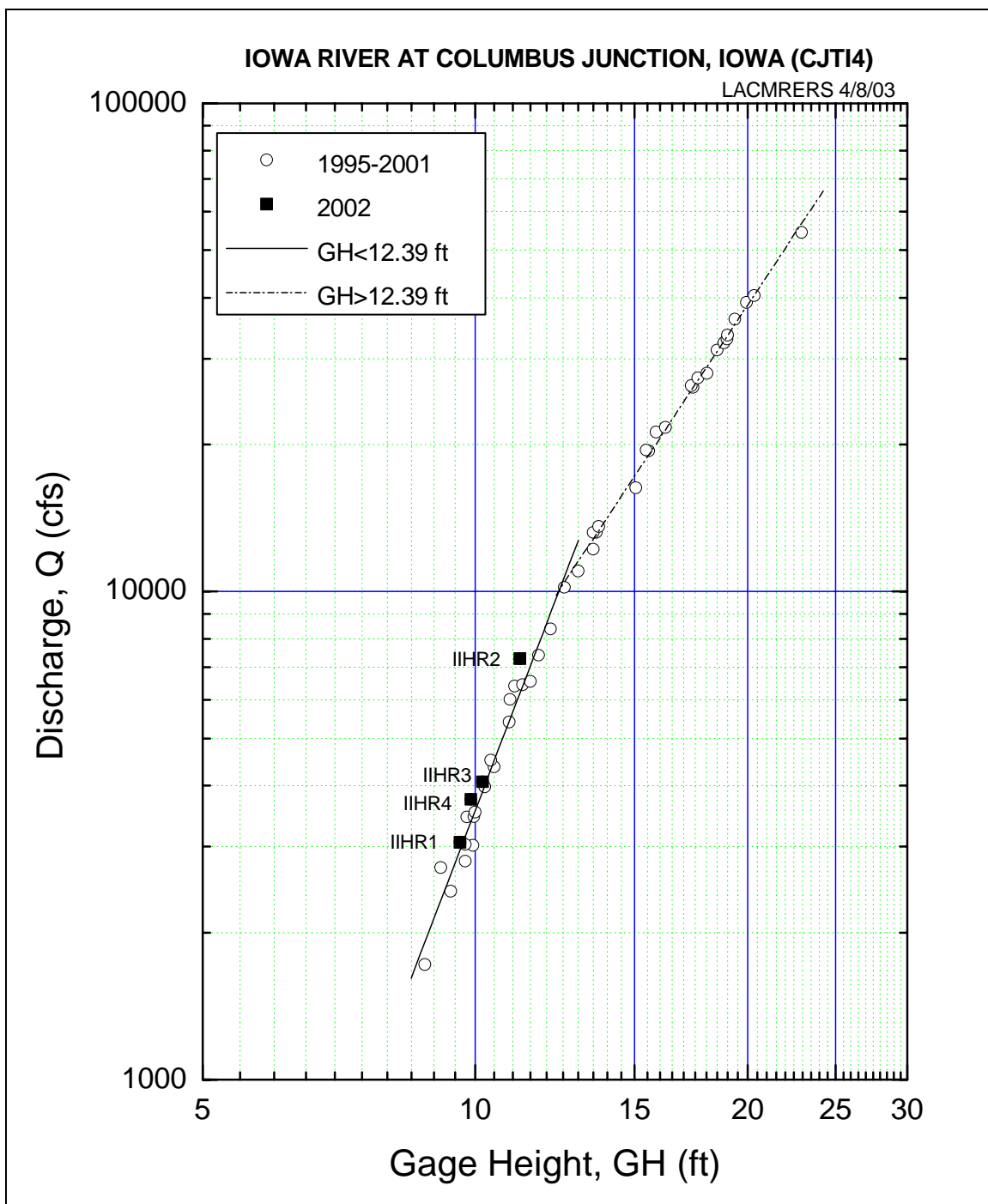


Figure 6 Log-linear stage-discharge relationships developed for CJT14

DATE: 4/20/2003

CJT14 - IOWA RIVER AT COLUMBUS JUNCTION, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 12.39 FT $Q=10^{-1.299*GH^{4.851}}$

EQUATION 2: GH > 12.39 FT $Q=10^{0.935*GH^{2.807}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
6	299	324	351	379	409	441	475	511	549	589	
7	632	677	724	774	827	883	942	1003	1068	1136	576
8	1208	1283	1361	1444	1530	1620	1715	1814	1917	2025	931
9	2138	2256	2379	2507	2640	2779	2924	3075	3232	3395	1426
10	3565	3741	3924	4114	4312	4516	4729	4949	5178	5415	2095
11	5660	5914	6177	6449	6731	7022	7323	7634	7956	8289	2972
12	8632	8987	9353	9730	10098	10328	10562	10799	11039	11283	2898
13	11530	11781	12035	12293	12554	12819	13087	13359	13635	13914	2666
14	14197	14483	14773	15067	15365	15666	15971	16280	16593	16910	3034
15	17230	17555	17883	18215	18551	18891	19236	19584	19936	20292	3422
16	20652	21017	21385	21758	22135	22515	22901	23290	23684	24081	3831
17	24483	24890	25301	25716	26135	26559	26987	27420	27857	28298	4261
18	28744	29195	29650	30109	30574	31042	31516	31994	32476	32963	4711
19	33455	33952	34453	34959	35470	35986	36506	37031	37561	38096	5181
20	38636	39181	39731	40285	40845	41409	41979	42553	43133	43717	5671
21	44307	44902	45502	46107	46717	47332	47953	48579	49210	49846	6180
22	50487	51134	51786	52444	53107	53775	54448	55127	55812	56502	6710
23	57197	57898	58604	59316	60033	60756	61485	62219	62959	63704	7258
24	64455	65212	65974	66742	67516	68296	69081	69872	70669	71472	7825
25	72280										

Table 6 Rating table developed for CJT14

4. DES MOINES RIVER NEAR EDDYVILLE, IA (EDYI4)

- Gage Description - EDYI4 - Des Moines River near Eddyville, IA
- Stream = Des Moines River
- Gage Zero = 600.00 feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°08'59" - Long 92°38'04"
- Drainage Area = 13,130 sq. mi.
- River Mile =
- Location of Gage = on downstream guard rail of bridge on State Highway 137, at south edge of Eddyville, 0.35 mi upstream from Miller Creek, and 1.5 mi downstream from Grays Creek.



River-Stage Gaging Station



Downstream View

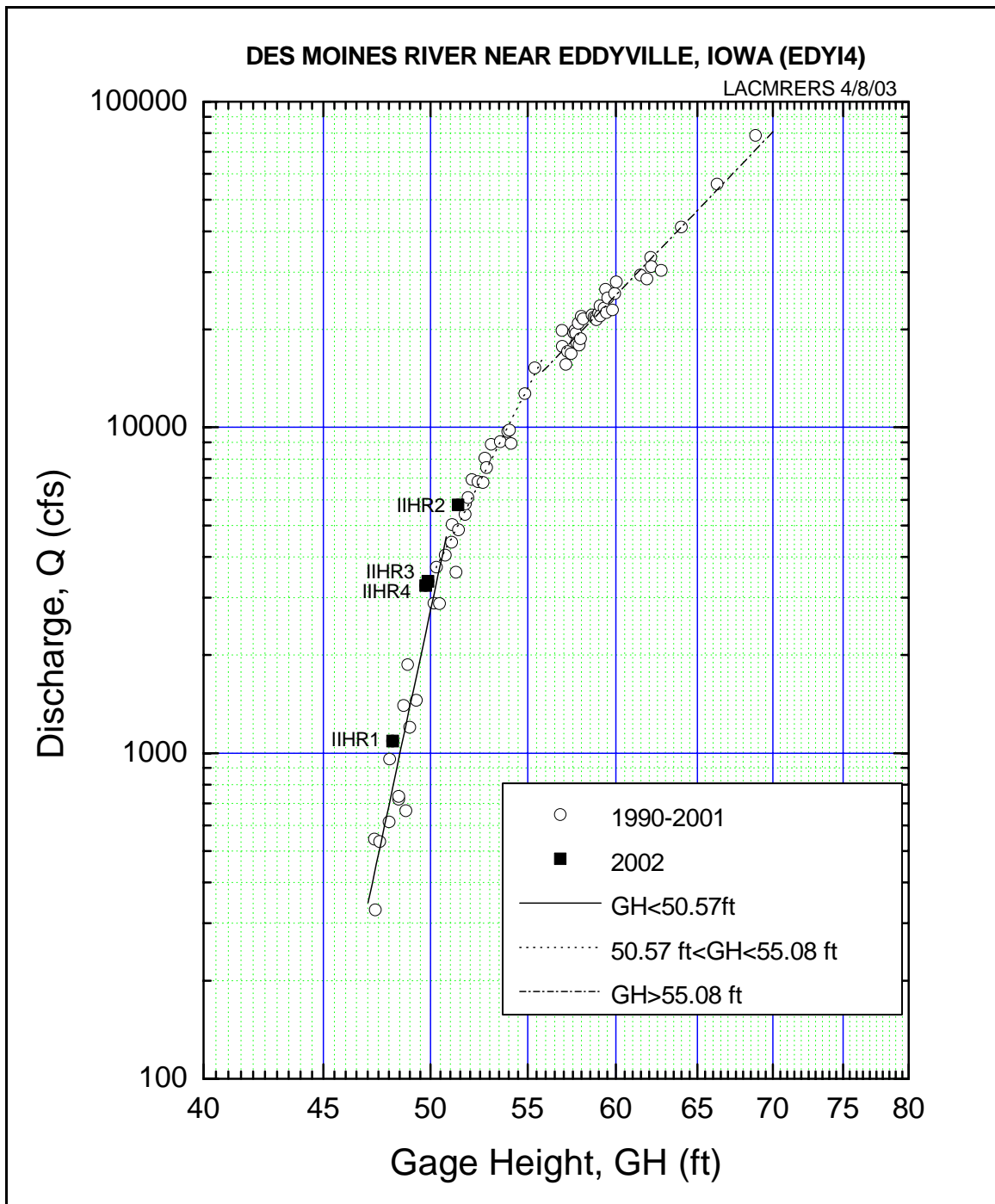


Figure 7 Log-linear stage-discharge relationships developed for EDYI4

DATE: 5/5/2003

EDYI4 - DES MOINES RIVER NEAR EDDYVILLE, IOWA
RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 50.57 FT $Q = 10^{-53.762} \cdot GH^{33.667}$

EQUATION 2: 50.57 FT < GH < 55.08 FT $Q = 10^{-20.493} \cdot GH^{14.142}$

EQUATION 3: GH > 55.08 FT $Q = 10^{-8.903} \cdot GH^{7.485}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
46	165	178	191	206	221	238	256	275	295	317	
47	341	366	393	422	453	487	522	561	602	645	352
48	692	743	796	854	916	981	1052	1127	1208	1294	694
49	1386	1485	1590	1703	1823	1951	2088	2235	2391	2558	1351
50	2737	2927	3130	3347	3579	3826	4047	4161	4279	4400	1787
51	4523	4650	4781	4915	5052	5193	5337	5485	5637	5793	1430
52	5953	6117	6285	6457	6634	6815	7001	7192	7387	7588	1840
53	7793	8004	8219	8441	8667	8900	9138	9382	9632	9889	2358
54	10151	10420	10696	10978	11268	11564	11868	12179	12498	12824	3008
55	13159	13475	13659	13845	14034	14224	14417	14613	14810	15010	2053
56	15212	15417	15623	15833	16044	16259	16475	16694	16916	17140	2155
57	17367	17596	17828	18063	18300	18540	18783	19028	19277	19528	2415
58	19782	20038	20298	20560	20826	21094	21366	21640	21917	22198	2700
59	22482	22768	23058	23352	23648	23948	24250	24557	24866	25179	3014
60	25495	25815	26138	26465	26796	27129	27467	27808	28153	28501	3358
61	28853	29209	29569	29932	30300	30671	31046	31426	31809	32196	3734
62	32588	32983	33383	33787	34195	34607	35023	35444	35870	36300	4146
63	36734	37172	37616	38063	38516	38973	39435	39901	40372	40848	4596
64	41329	41815	42306	42802	43302	43808	44319	44835	45356	45883	5086
65	46415	46952	47495	48043	48596	49155	49719	50289	50865	51447	5619
66	52034	52627	53226	53831	54441	55058	55681	56310	56945	57586	6199
67	58233	58887	59547	60213	60886	61566	62252	62944	63644	64350	6829
68	65062	65782	66508	67242	67982	68730	69484	70246	71015	71791	7512
69	72575	73366	74164	74970	75784	76605	77434	78270	79115	79967	8253
70	80827	81696	82572	83457	84349	85250	86160	87077	88003	88938	9054
71	89881	90833	91794	92763	93741	94729	95725	96730	97744	98768	9920
72	99801	100843	101895	102956	104026	105107	106197	107296	108406	109526	10854
73	110655	111795	112945	114105	115275	116456	117647	118849	120061	121284	11863
74	122518										

Table 7 Rating table developed for EDYI4

5. WEST FORK DES MOINES RIVER NEAR EMMETSBURG, IA (EMTI4)

- Gage Description - EMTI4 - W. Des Moines River near Emmetsburg, IA
- Stream = West Fork Des Moines River
- Gage Zero = 1196.00 feet NGVD (1929)
- Flood Stage = 10.00 feet
- Record Stage = 20.75 feet Date 04-12-69
- Lat 43°07'35" - Long 94°42'24"
- Drainage Area = 1672.0 sq. mi.
- River mile = 380.6
- Location of Gage = on left bank 15 ft downstream from bridge on US Highway 18, 3.0 miles downstream from Jack Creek, and 0.5 mile northwest of Emmetsburg, IA.



River-Stage Gaging Station



Downstream View

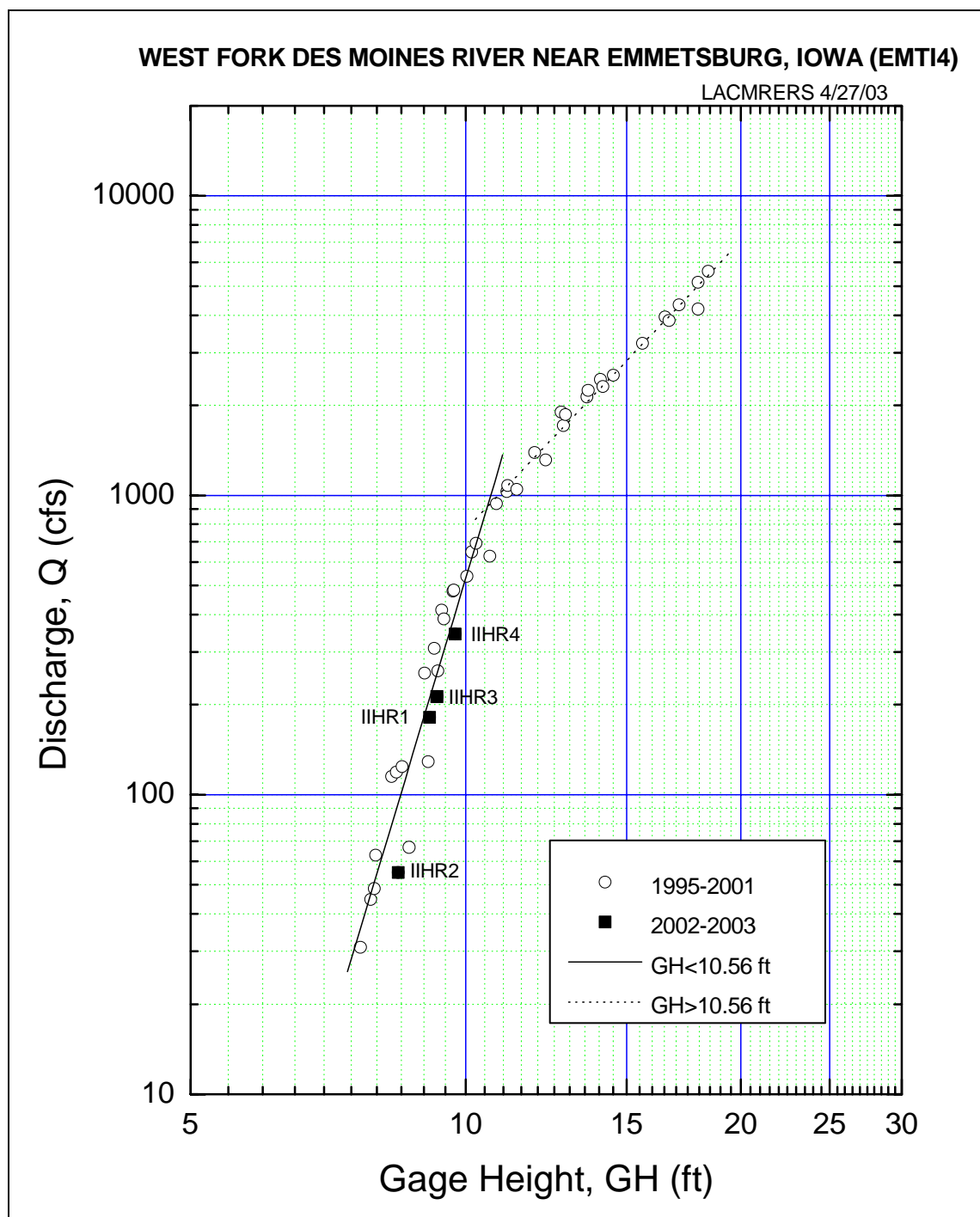


Figure 8 Log-linear stage-discharge relationships developed for EMTI4

DATE: 5/5/2003

EMTI4 - WEST FORK DES MOINES RIVER NEAR EMMETSBURG, IOWA
 RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 10.56 FT **$Q=10^{-7.426} \cdot GH^{10.148}$**

EQUATION 2: GH > 10.56 FT **$Q=10^{-0.316} \cdot GH^{3.201}$**

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
7	14.1	16.3	18.8	21.6	24.8	28.5	32.5	37.2	42.4	48.2	
8	54.8	62.1	70.4	79.6	89.9	101	114	128	144	162	126
9	181	203	226	252	281	313	348	387	430	476	346
10	527	583	645	712	785	865	925	953	982	1011	514
11	1041	1072	1103	1135	1167	1200	1234	1268	1303	1339	334
12	1376	1413	1450	1489	1528	1568	1608	1649	1691	1734	402
13	1777	1821	1866	1912	1958	2005	2053	2102	2152	2202	476
14	2253	2305	2358	2411	2466	2521	2577	2634	2692	2750	557
15	2810	2870	2931	2994	3057	3121	3186	3251	3318	3386	645
16	3455	3524	3595	3666	3739	3812	3887	3962	4039	4116	740
17	4194	4274	4354	4436	4519	4602	4687	4773	4860	4948	842
18	5037	5127	5218	5310	5404	5498	5594	5691	5789	5888	952
19	5988	6090	6192	6296	6401	6507	6615	6723	6833	6944	1069
20	7057	7170	7285	7401	7518	7637	7757	7878	8001	8124	1193
21	8249	8376	8504	8633	8763	8895	9028	9162	9298	9435	1325
22	9574	9714	9855	9998	10143	10288	10435	10584	10734	10885	1464
23	11038	11192	11348	11506	11664	11825	11987	12150	12315	12481	1611
24	12649										

Table 8 Rating table developed for EMTI4

6. WEST FORK DES MOINES RIVER NEAR ESTHERVILLE, IA (ESVI4)

- Gage Description - ESVI4 - W. Des Moines River near Estherville, IA
- Stream = West Fork Des Moines River
- Gage Zero = 1,247.55 feet NGVD (1929)
- Flood Stage = 7.00 feet
- Record Stage = 17.68 feet Date 04-12-69
- Lat 43°23'51" - Long 94°50'38"
- Drainage Area = 1,372 sq. mi.
- River Mile = 404.2
- Location of Gage = Emmet County, city park in Estherville, IA; right bank; 1200 ft. downstream of State highway 9 bridge; 0.1 mi. upstream from School Creek, 2.3 mi. upstream from Brown Creek. at mile 404.2.



River-Stage Gaging Station



Downstream View

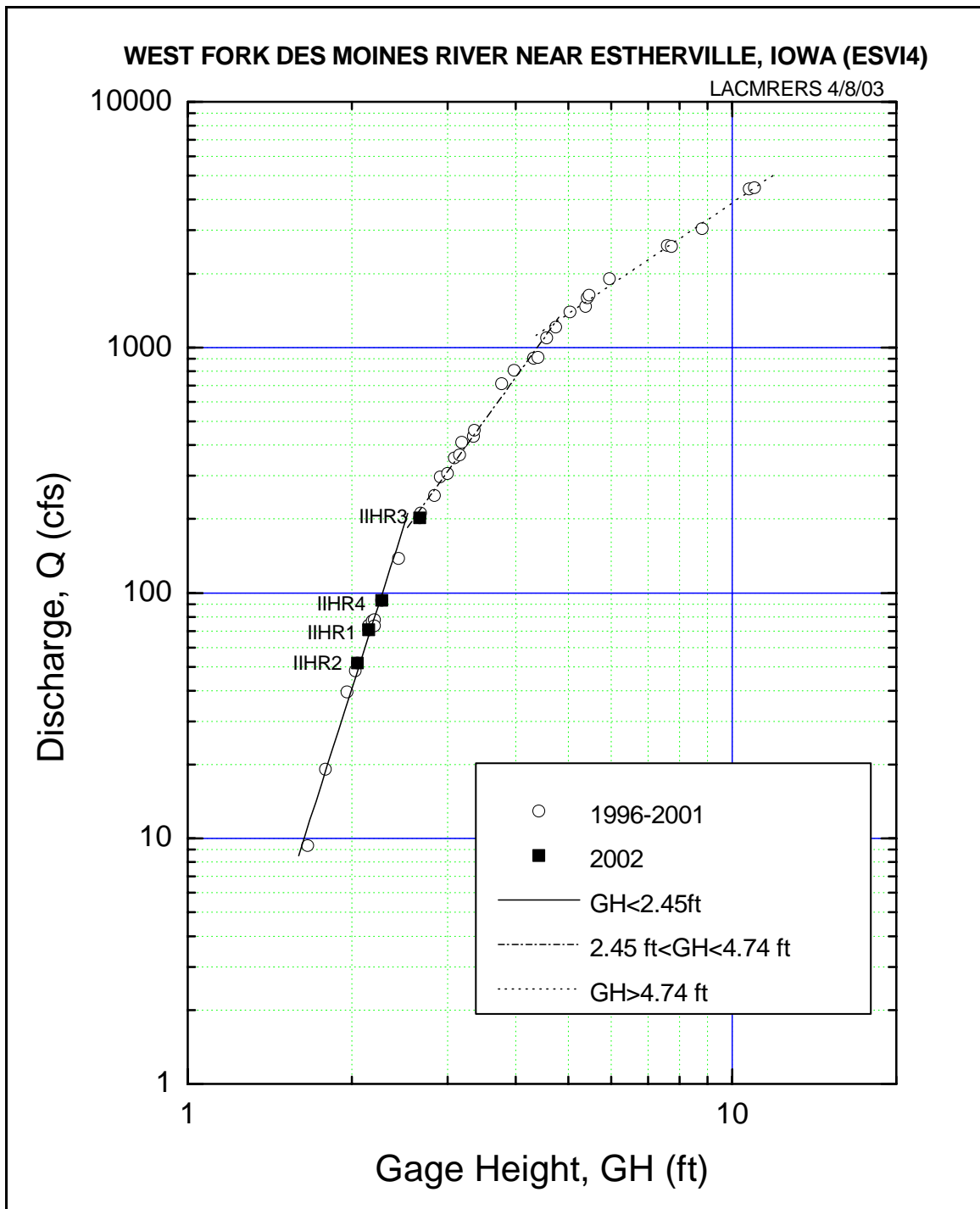


Figure 9 Log-linear stage-discharge relationships developed for ESVI4

DATE: 5/5/2003

ESVI4 - WEST FORK DES MOINES RIVER NEAR ESTHERVILLE, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: $GH < 2.45 \text{ FT}$ $Q = 10^{-0.483 * GH^{6.946}}$

EQUATION 2: $2.45 \text{ FT} < GH < 4.74 \text{ FT}$ $Q = 10^{1.028 * GH^{3.072}}$

EQUATION 3: $GH > 4.74 \text{ FT}$ $Q = 10^{2.093 * GH^{1.496}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
1	0.3	0.6	1.2	2.0	3.4	5.5	8.6	13.1	19.5	28.4	
2	40.5	56.9	78.6	107	144	178	201	226	252	281	271
3	312	345	380	418	458	501	546	594	644	698	443
4	754	814	876	942	1011	1083	1159	1238	1295	1335	622
5	1376	1418	1459	1502	1544	1587	1630	1674	1718	1763	432
6	1808	1853	1899	1945	1991	2038	2085	2132	2180	2228	469
7	2277	2325	2375	2424	2474	2524	2575	2625	2677	2728	503
8	2780	2832	2885	2937	2990	3044	3098	3152	3206	3261	536
9	3316	3371	3426	3482	3538	3595	3652	3709	3766	3824	566
10	3882	3940	3998	4057	4116	4175	4235	4295	4355	4416	595
11	4476	4537	4599	4660	4722	4784	4847	4909	4972	5035	622
12	5099	5162	5226	5291	5355	5420	5485	5550	5616	5681	649
13	5747	5814	5880	5947	6014	6081	6149	6216	6284	6353	674
14	6421										

Table 9 Rating table developed for ESVI4

7. BOONE RIVER NEAR GOLDFIELD, IA (GLDI4)

- Gage Description - GLDI4 - Boone River near Goldfield, IA
- Stream = Boone River
- Gage Zero = N/A feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°43'34" - Long 93°58'02"
- Drainage Area = 418 sq. mi.
- River Mile = N/A
- Location of Gage = on left bank 15 ft downstream from bridge on county highway, 1 mile upstream from ditch #9, and 1.5 miles south of Goldfield, IA.



River-Stage Gaging Station



Downstream View

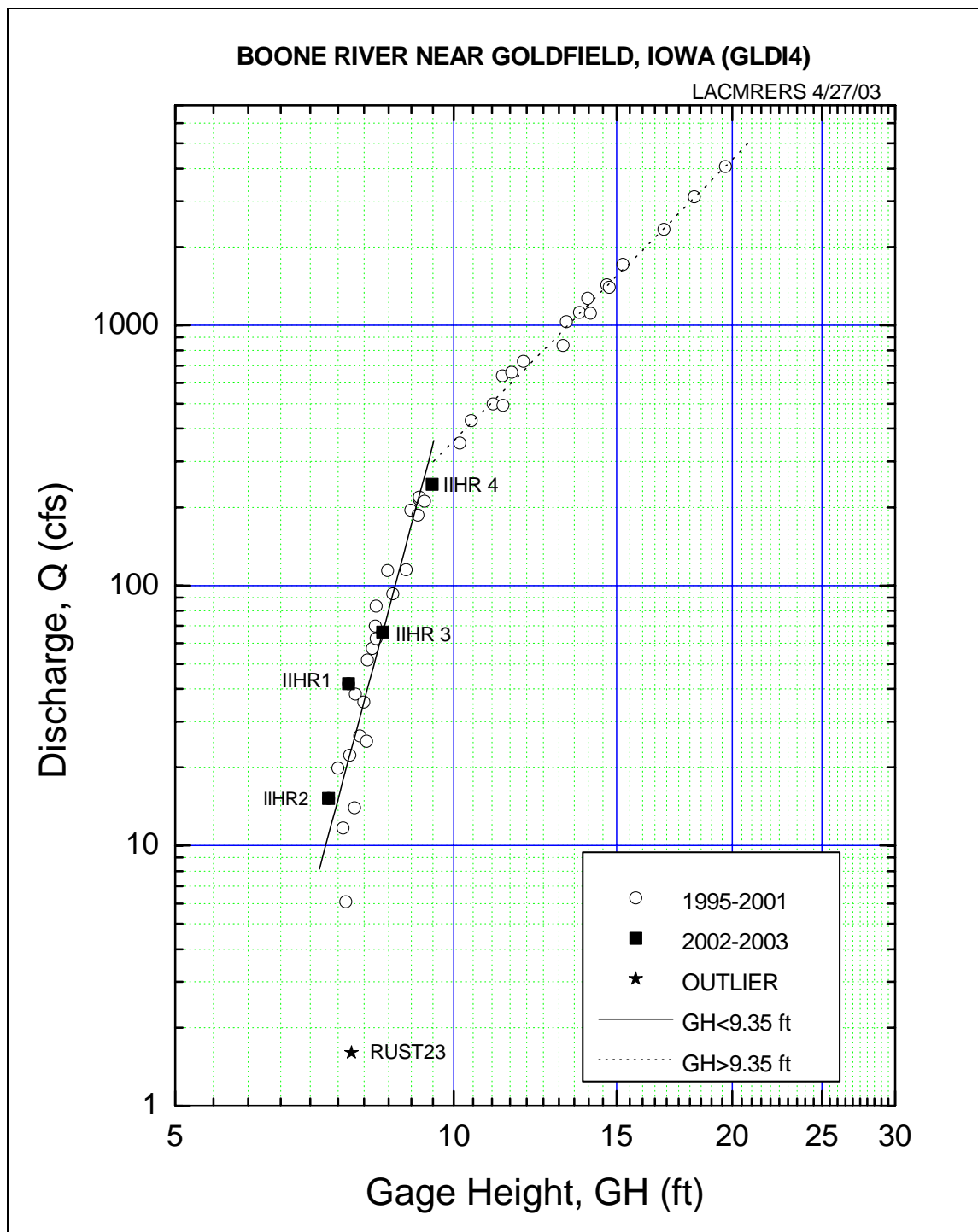


Figure 10 Log-linear stage-discharge relationships developed for GLDI4

DATE: 5/5/2003

GLDI4 - BOONE RIVER NEAR GOLDFIELD, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 9.35 FT $Q=10^{-10.439*GH^{13.278}}$

EQUATION 2: GH > 9.35 FT $Q=10^{-1.037*GH^{3.592}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
7	6.1	7.3	8.8	10.6	12.7	15.1	18.0	21.5	25.5	30.2	
8	35.7	42.1	49.5	58.1	68.2	79.8	93.2	109	126	147	135
9	170	197	228	263	287	299	310	322	334	346	189
10	359	372	385	399	413	428	443	458	473	489	147
11	506	522	539	557	575	593	612	631	650	670	185
12	691	712	733	755	777	800	823	847	871	896	230
13	921	947	973	1000	1027	1055	1083	1112	1141	1171	281
14	1202	1233	1265	1297	1330	1363	1398	1432	1468	1503	338
15	1540	1577	1615	1654	1693	1733	1773	1814	1856	1899	402
16	1942	1986	2030	2076	2122	2169	2216	2265	2314	2364	472
17	2414	2466	2518	2571	2625	2679	2735	2791	2848	2906	550
18	2964	3024	3084	3146	3208	3271	3335	3400	3466	3532	635
19	3600	3668	3738	3808	3880	3952	4025	4099	4175	4251	728
20	4328	4406	4486	4566	4647	4730	4813	4897	4983	5070	829
21	5157										

Table 10 Rating table developed for GLDI4

8. NORTH RACCOON RIVER NEAR LANESBORO, IA (LKCI4)

- Gage Description - LKCI4 - N. Raccoon River near Lanesboro, IA
- Stream = North Raccoon River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°10'08" - Long 94°43'34"
- Drainage Area = 1238 sq. mi.
- River Mile = N/A
- Location of Gage = on left bank 15 ft downstream from bridge on State Highway 286, 1.5 miles downstream from Elk Run, and 1.5 miles southwest of Lanesboro, IA.



River-Stage Gaging Station



Downstream View

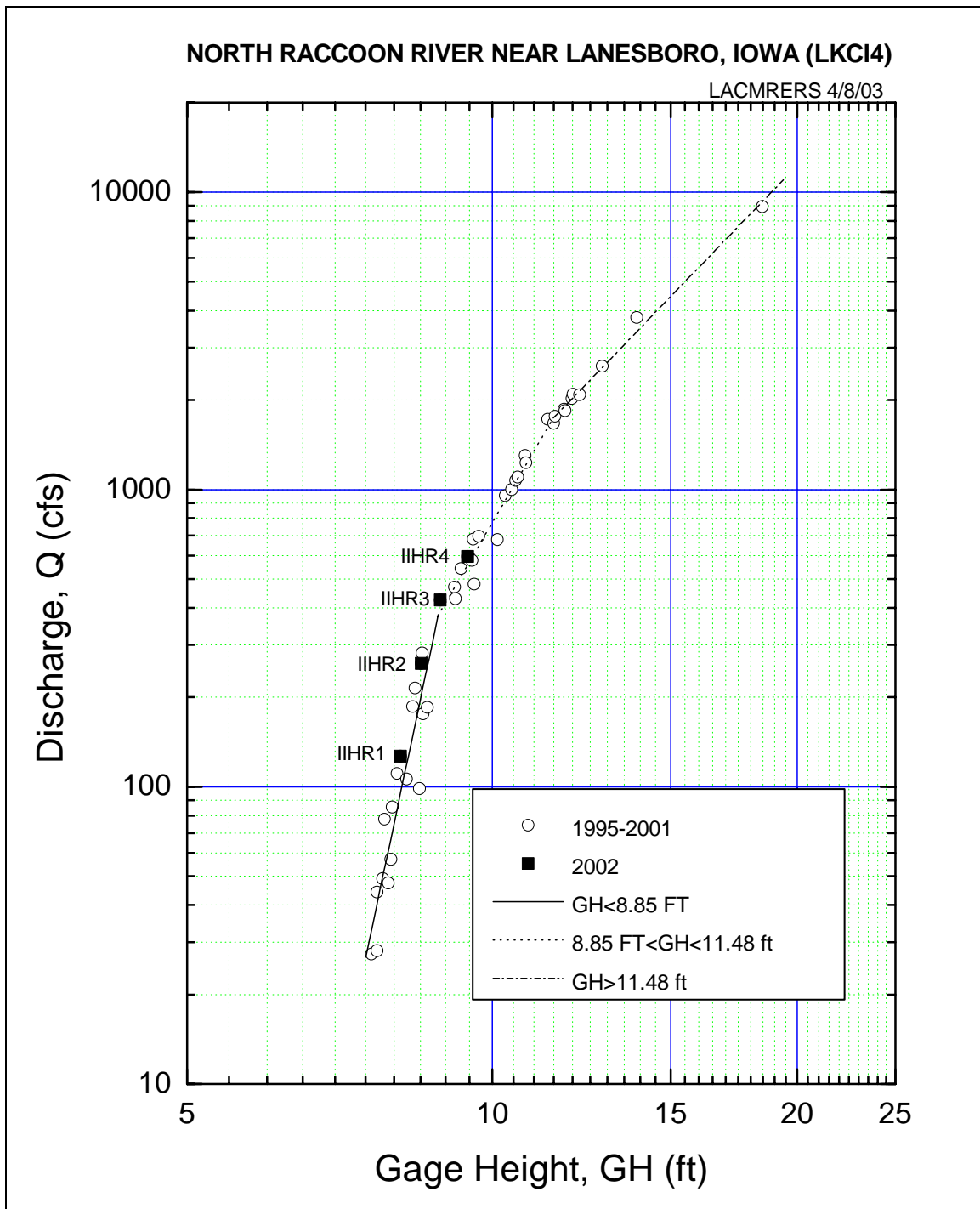


Figure 11 Log-linear stage-discharge relationships developed for LKCI4

DATE: 5/5/2003

LKCI4 - NORTH RACCOON RIVER NEAR LANESBORO, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: $GH < 8.85 \text{ FT}$ $Q = 10^{-12.647} * GH^{16.079}$

EQUATION 2: $8.85 \text{ FT} < GH < 11.48 \text{ FT}$ $Q = 10^{-2.964} * GH^{5.852}$

EQUATION 3: $GH > 11.48 \text{ FT}$ $Q = 10^{-0.503} * GH^{3.530}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
7	8.7	11	13.7	17.2	21.3	26.5	32.8	40.4	49.8	61.1	
8	74.8	91.3	111	135	164	198	239	288	346	391	342
9	417	445	474	505	538	572	609	647	687	729	356
10	773	819	868	919	972	1028	1087	1148	1212	1279	577
11	1350	1423	1500	1580	1663	1743	1797	1852	1909	1966	676
12	2025	2086	2147	2210	2274	2339	2406	2474	2544	2615	661
13	2687	2760	2836	2912	2990	3070	3151	3233	3317	3403	803
14	3490	3579	3669	3761	3855	3950	4047	4146	4246	4349	962
15	4453	4558	4666	4775	4886	4999	5114	5230	5349	5469	1139
16	5592	5716	5842	5971	6101	6233	6368	6504	6643	6783	1334
17	6926	7071	7218	7367	7519	7672	7828	7986	8147	8309	1549
18	8475	8642	8812	8984	9158	9335	9514	9696	9881	10067	1782
19	10257	10448	10643	10840	11039	11241	11446	11654	11864	12077	2036
20	12292	12511	12732	12956	13182	13412	13644	13880	14118	14359	2310
21	14603	14850	15100	15353	15609	15868	16130	16395	16663	16934	2606
22	17209										

Table 11 Rating table developed for LKCI4

9. NORTH FORK ENGLISH RIVER NEAR PARNELL, IA (NEPI4)

- Gage Description - NEPI4 - N. Fork English River near Parnell, IA
- Stream = North Fork English River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°33'45" - Long 92°04'15"
- Drainage Area = 302 sq. mi.
- River Mile = 3.5
- Location of Gage = 15 ft downstream from bridge on County Highway F67, 3.5 miles upstream from South English River, and 4.0 miles south of Parnell, IA.



River-Stage Gaging Station



Downstream View

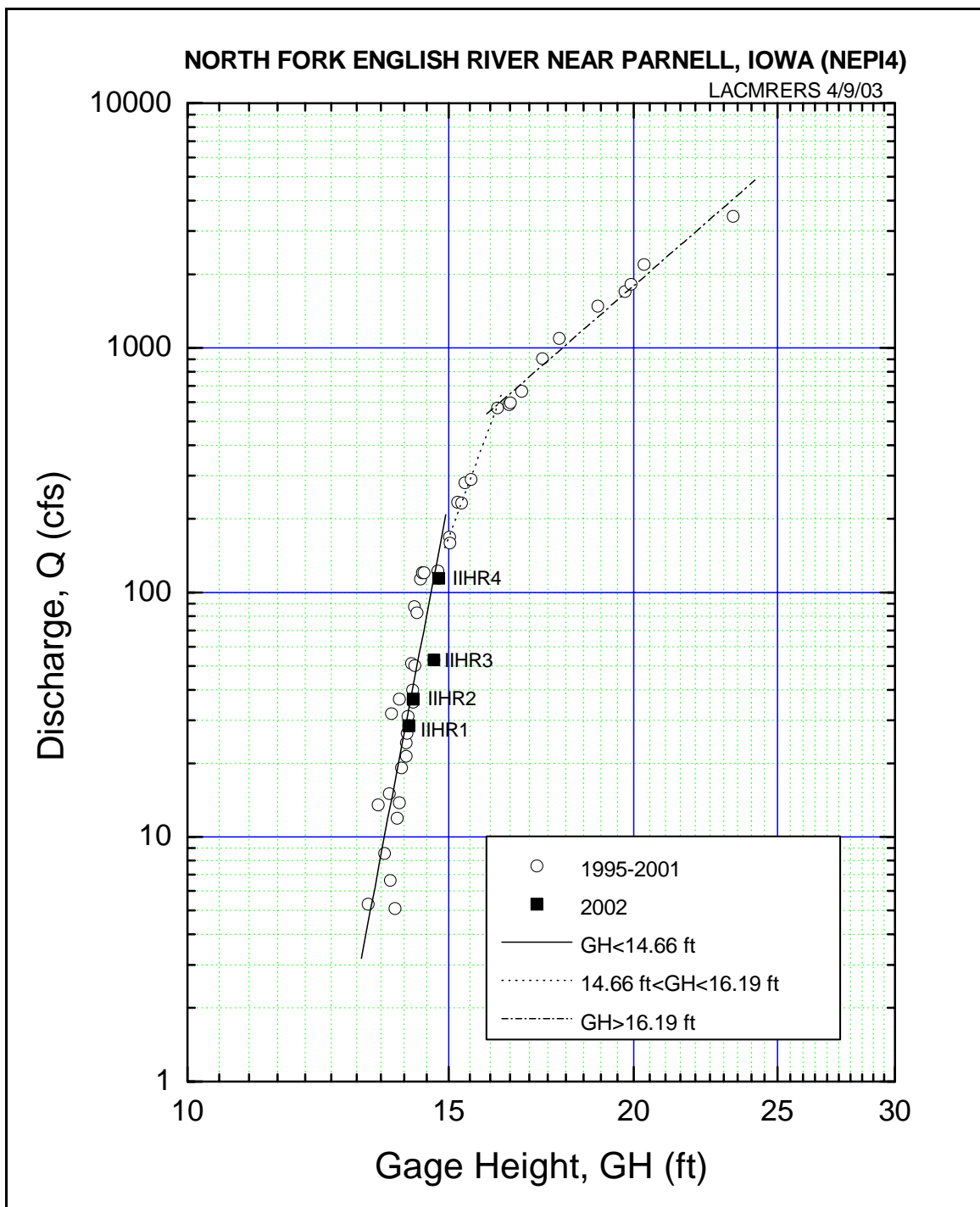


Figure 12 Log-linear stage-discharge relationships developed for NEPI4

DATE: 5/5/2003

NEPI4 - NORTH FORK ENGLISH RIVER NEAR PARNELL, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH< 14.66 FT $Q=10^{-35.041} \cdot GH^{31.818}$

EQUATION 2: 14.66 FT<GH<16.19 FT $Q=10^{-17.075} \cdot GH^{16.411}$

EQUATION 3: GH>16.19 FT $Q=10^{-3.622} \cdot GH^{5.286}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
13	2.5	3.2	4.1	5.2	6.6	8.4	10.6	13.4	16.9	21.3	
14	26.7	33.5	41.9	52.4	65.4	81.5	102	121	135	151	142
15	168	188	209	233	259	288	320	356	395	438	317
16	485	537	591	610	631	651	672	694	716	739	277
17	762	786	811	836	862	889	916	944	972	1001	269
18	1031	1062	1093	1125	1158	1192	1226	1262	1298	1335	341
19	1372	1411	1451	1491	1532	1574	1618	1662	1707	1753	428
20	1800	1848	1897	1947	1999	2051	2104	2159	2215	2271	530
21	2329	2389	2449	2511	2574	2638	2704	2770	2838	2908	649
22	2979	3051	3125	3200	3277	3355	3434	3515	3598	3682	789
23	3768	3855	3944	4035	4127	4222	4317	4415	4514	4615	951
24	4718	4823	4930	5039	5149	5262	5376	5493	5611	5732	1136
25	5855	5980	6107	6236	6367	6501	6637	6775	6916	7058	1349
26	7204	7351	7501	7654	7809	7967	8127	8290	8455	8623	1590
27	8794	8968	9144	9323	9505	9690	9878	10068	10262	10458	1864
28	10658	10861	11067	11276	11488	11703	11922	12144	12369	12598	2172
29	12830	13066	13305	13548	13794	14044	14297	14554	14815	15080	2518
30	15348										

Table 12 Rating table developed for NEPI4

10. NORTH RACCOON RIVER NEAR PERRY, IA (PROI4)

- Gage Description - PROI4 - N. Raccoon River near Perry, IA
- Stream = North Raccoon River
- Gage Zero = N/A
- Flood Stage = 13.00 feet
- Record Stage = N/A
- Lat 41°50'10" - Long 94°07'34"
- Drainage Area = 2167 sq. mi.
- River Mile = N/A
- Location of Gage = On left bank 15 ft downstream from bridge on State Highway 141, 1.5 miles upstream from Frog Creek, and 1.5 miles west of Perry, IA.



River-Stage Gaging Station



Downstream View

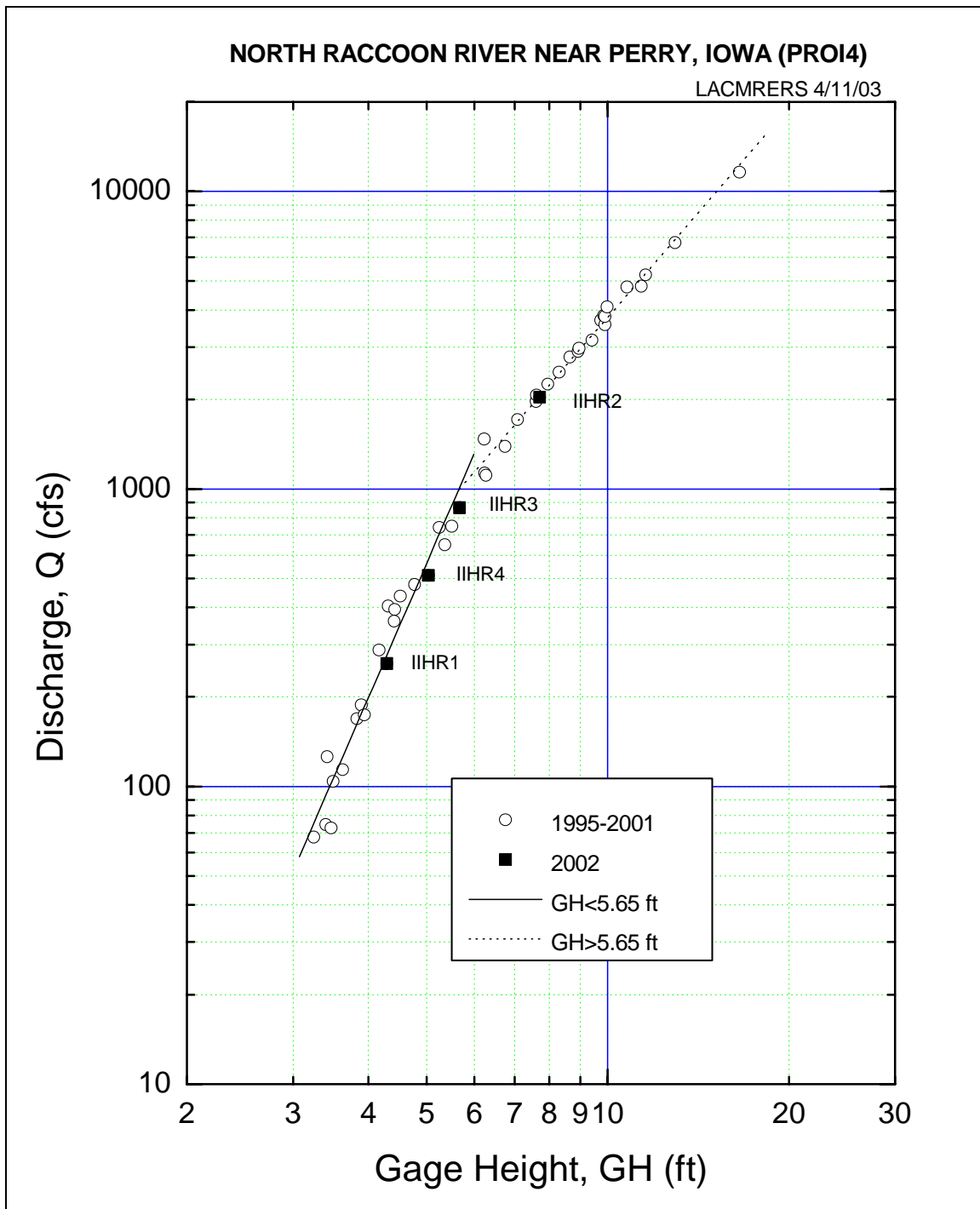


Figure 13 Log-linear stage-discharge relationships developed for PROI4

DATE: 5/5/2003

PROI4 - NORTH RACCOON RIVER NEAR PERRY, IOWA
 RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 5.65 FT **$Q=10^{-0.508*GH^{4.660}}$**

EQUATION 2: GH > 5.65 FT **$Q=10^{1.235*GH^{2.342}}$**

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
2	7.8	9.9	12.2	15.1	18.4	22.2	26.7	31.8	37.6	44.3	
3	51.9	60.5	70.1	81.0	93.0	107	121	138	156	176	147
4	198	223	249	278	309	344	381	421	464	511	363
5	561	616	674	736	803	875	952	1012	1054	1097	580
6	1141	1186	1233	1280	1328	1377	1427	1478	1530	1583	496
7	1638	1693	1749	1807	1865	1925	1986	2047	2110	2174	601
8	2239	2305	2372	2441	2510	2581	2652	2725	2799	2874	711
9	2950	3027	3106	3186	3266	3348	3432	3516	3601	3688	826
10	3776	3865	3955	4046	4139	4233	4328	4424	4522	4620	944
11	4720	4821	4923	5027	5132	5238	5345	5454	5564	5675	1067
12	5787	5900	6015	6131	6249	6367	6487	6609	6731	6855	1193
13	6980	7106	7234	7363	7493	7625	7758	7892	8028	8165	1323
14	8303	8443	8583	8726	8869	9014	9160	9308	9457	9607	1456
15	9759	9912	10067	10222	10379	10538	10698	10859	11022	11186	1592
16	11351	11518	11687	11856	12027	12200	12374	12549	12726	12904	1732
17	13083	13264	13447	13630	13816	14002	14190	14380	14571	14763	1874
18	14957	15153	15349	15548	15747	15948	16151	16355	16561	16768	2019
19	16976	17186	17398	17611	17825	18041	18258	18477	18698	18920	2167
20	19143	19368	19594	19822	20052	20283	20515	20749	20985	21222	2317
21	21460										

Table 13 Rating table developed for PROI4

11. IOWA RIVER NEAR STEAMBOAT ROCK, IA (STBI4)

- Gage Description - STBI4 - Iowa River near Steamboat Rock, IA
- Stream = Iowa River
- Gage Zero = 951.46 feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = 16.42 feet Date 03/08/65
- Lat 42° 24'26" - Long 93°04'19"
- Drainage Area = 735.0 sq. mi.
- River Mile = 258.1
- Location of Gage = Hardin County, Steamboat Rock, IA; on right bank 400 ft upstream from bridge on county highway D35 in Steamboat Rock, and at mile 258.1.



River-Stage Gaging Station



Downstream View

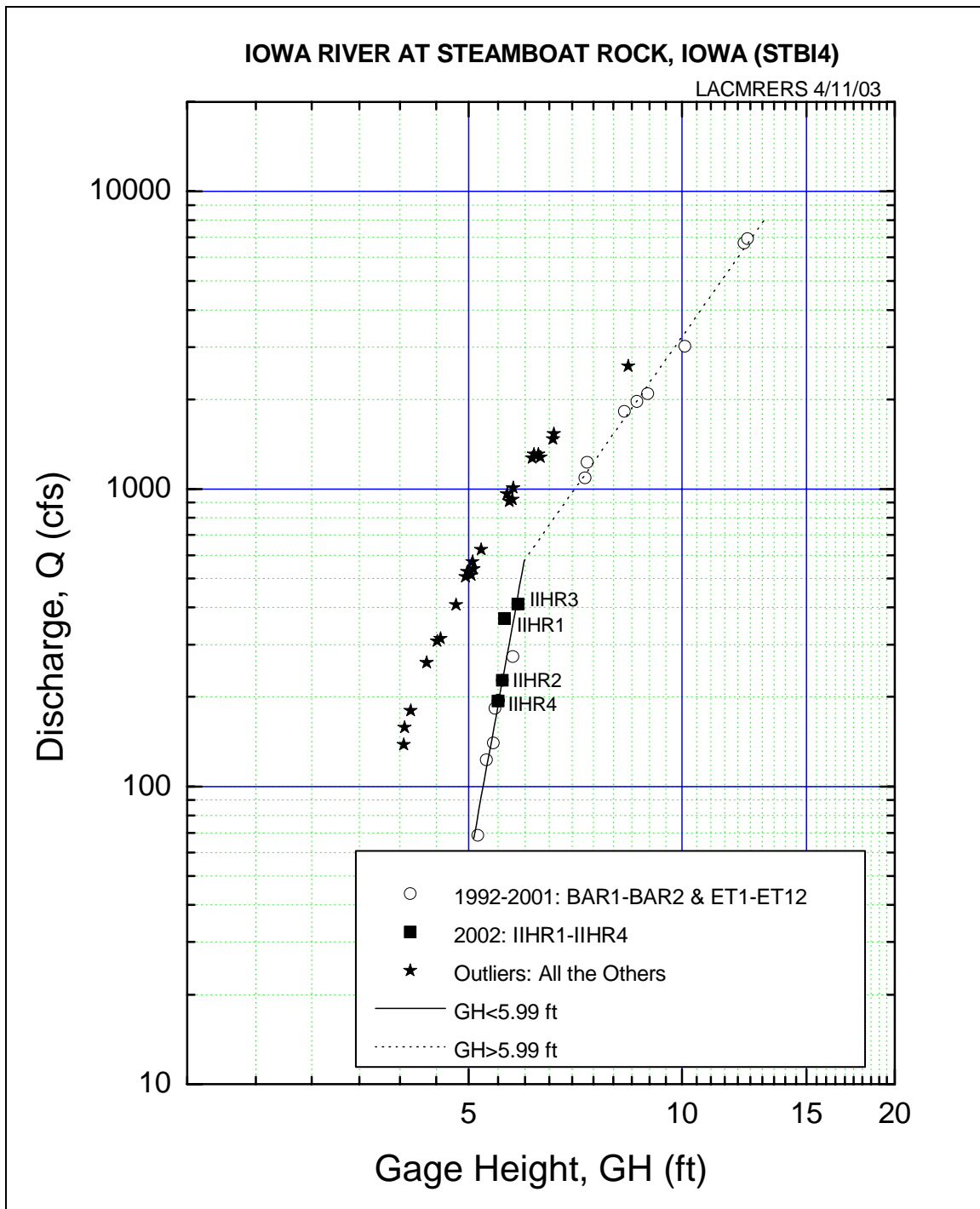


Figure 14 Log-linear stage-discharge relationships developed for STBI4

DATE: 5/5/2003

STBI4 - IOWA RIVER AT STEAMBOAT ROCK, IOWA
 RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 5.99 FT $Q=10^{-7.408*GH^{13.078}}$

EQUATION 2: GH > 5.99 FT $Q=10^{0.135*GH^{3.376}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
4	2.9	4.0	5.5	7.5	10.2	13.6	18.2	24.1	31.7	41.5	
5	54.1	70.1	90.3	116	148	188	238	300	377	471	524
6	578	611	646	682	719	758	798	839	882	927	395
7	973	1021	1070	1121	1174	1228	1284	1342	1402	1464	554
8	1527	1592	1660	1729	1800	1874	1949	2027	2107	2189	746
9	2273	2359	2448	2539	2632	2728	2826	2927	3030	3135	971
10	3243	3354	3468	3584	3703	3824	3949	4076	4206	4339	1231
11	4475	4613	4755	4900	5048	5199	5353	5511	5671	5835	1528
12	6002	6173	6347	6524	6705	6889	7077	7268	7464	7662	1862
13	7865	8071	8281	8494	8712	8933	9159	9388	9621	9859	2236
14	10100	10346	10596	10850	11108	11371	11637	11909	12184	12465	2649
15	12749	13039	13332	13631	13934	14242	14554	14872	15194	15521	3104
16	15853										

Table 14 Rating table developed for STBI4

12. IOWA RIVER NEAR TAMA, IA (TAMI4)

- Gage Description - TAMI4 - Iowa River near Tama, IA
- Stream = Iowa River
- Gage Zero = 794.34 feet NGVD (1929)
- Flood Stage = 13.00 feet
- Record Stage = 21.60 feet Date 05-23-93
- Lat 41°37'11" - Long 92°34'36"
- Drainage Area = 1,984 sq. mi.
- River Mile = 188.5
- Location of Gage = on right bank at downstream side of bridge on State Highway 63 south side of Tama, 0.45 miles downstream from Deer Creek, and at mile 188.5.



Wire Gage on the Bridge



Downstream View

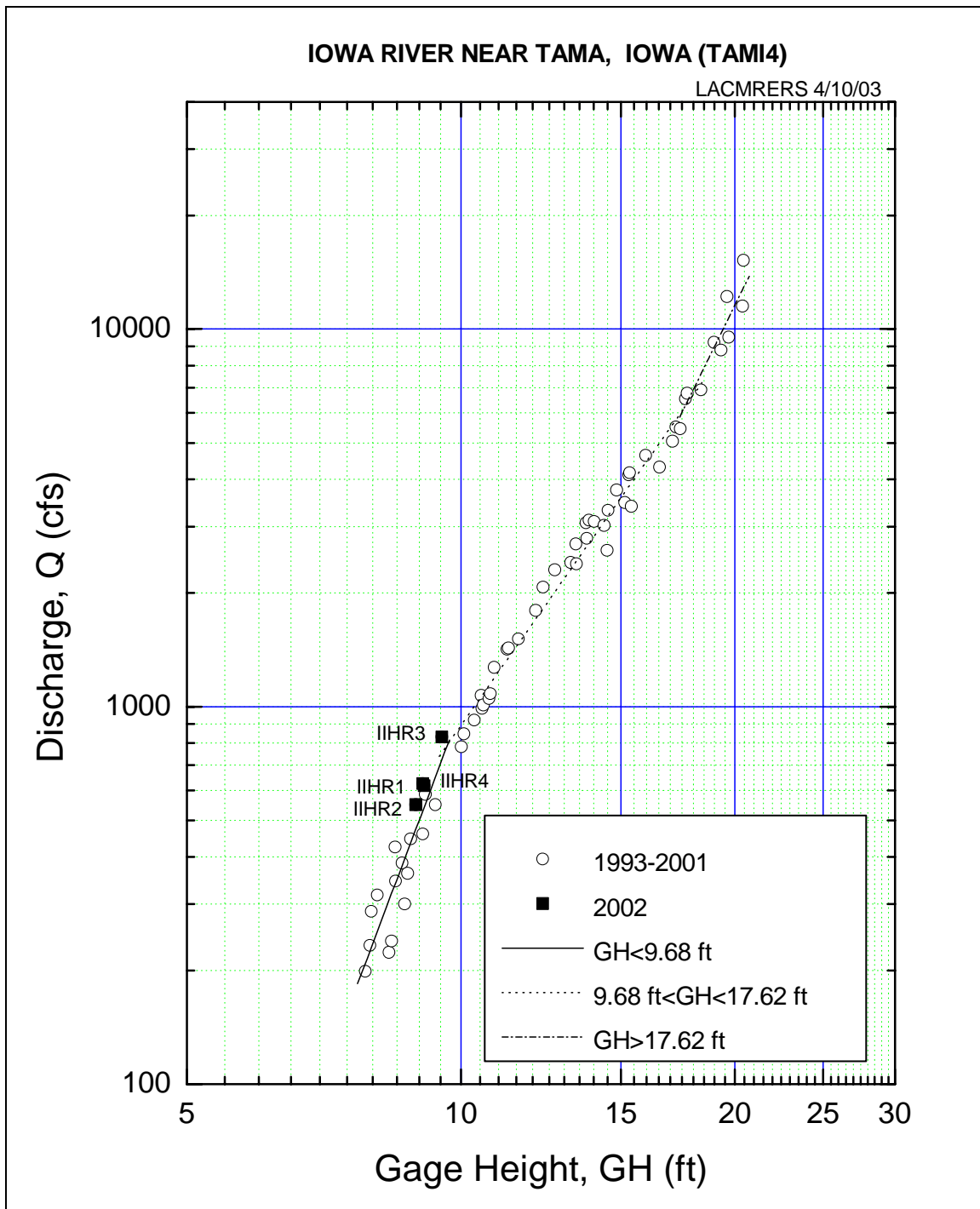


Figure 15 Log-linear stage-discharge relationships developed for TAMI4

DATE: 5/5/2003

TAMI4 - IOWA RIVER NEAR TAMA, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH< 9.68 FT $Q=10^{-3.397*GH^{6.389}}$

EQUATION 2: 9.68 FT<GH<17.62 FT $Q=10^{-0.480*GH^{3.430}}$

EQUATION 3: GH>17.62 FT $Q=10^{-2.304*GH^{4.894}}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
7	101	110	120	132	143	156	170	185	201	218	
8	236	256	276	299	322	348	375	403	434	466	265
9	501	537	576	618	661	707	756	803	832	861	391
10	891	922	954	986	1020	1054	1088	1124	1161	1198	345
11	1236	1275	1315	1355	1397	1439	1483	1527	1572	1619	430
12	1666	1714	1763	1813	1864	1916	1969	2023	2078	2135	526
13	2192	2250	2310	2370	2432	2495	2559	2624	2690	2758	634
14	2826	2896	2967	3040	3113	3188	3264	3341	3420	3500	755
15	3581	3664	3747	3833	3919	4007	4097	4187	4280	4373	887
16	4468	4565	4663	4762	4863	4966	5070	5175	5282	5391	1033
17	5501	5613	5726	5841	5958	6076	6196	6362	6540	6721	1406
18	6907	7097	7291	7489	7692	7898	8110	8325	8545	8770	2092
19	9000	9234	9473	9717	9966	10220	10479	10743	11012	11287	2568
20	11568	11853	12145	12442	12745	13053	13368	13689	14015	14348	3120
21	14687	15033	15385	15743	16108	16480	16858	17244	17636	18036	3755
22	18442	18856	19278	19706	20143	20586	21038	21498	21965	22441	4482
23	22924	23416	23917	24425	24943	25469	26004	26547	27100	27662	5309
24	28233	28813	29403	30003	30612	31231	31859	32498	33147	33807	6243
25	34476										

Table 15 Rating table developed for TAMI4

13. DEER CREEK NEAR TOLEDO, IA (TOLI4)

- Gage Description - TOLI4 - Deer Creek near Toledo, IA
- Stream = Deer Creek
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°00'00" - Long 92°35'10"
- Drainage Area = 76.4 sq. mi.
- River Mile = N/A
- Location of Gage = on right bank 15 ft downstream from bridge on County Highway E43, 1.0 mile south of mouth of Jordan Creek, and 1.0 mile north of Toledo, IA.



River-Stage Gaging Station



Downstream View

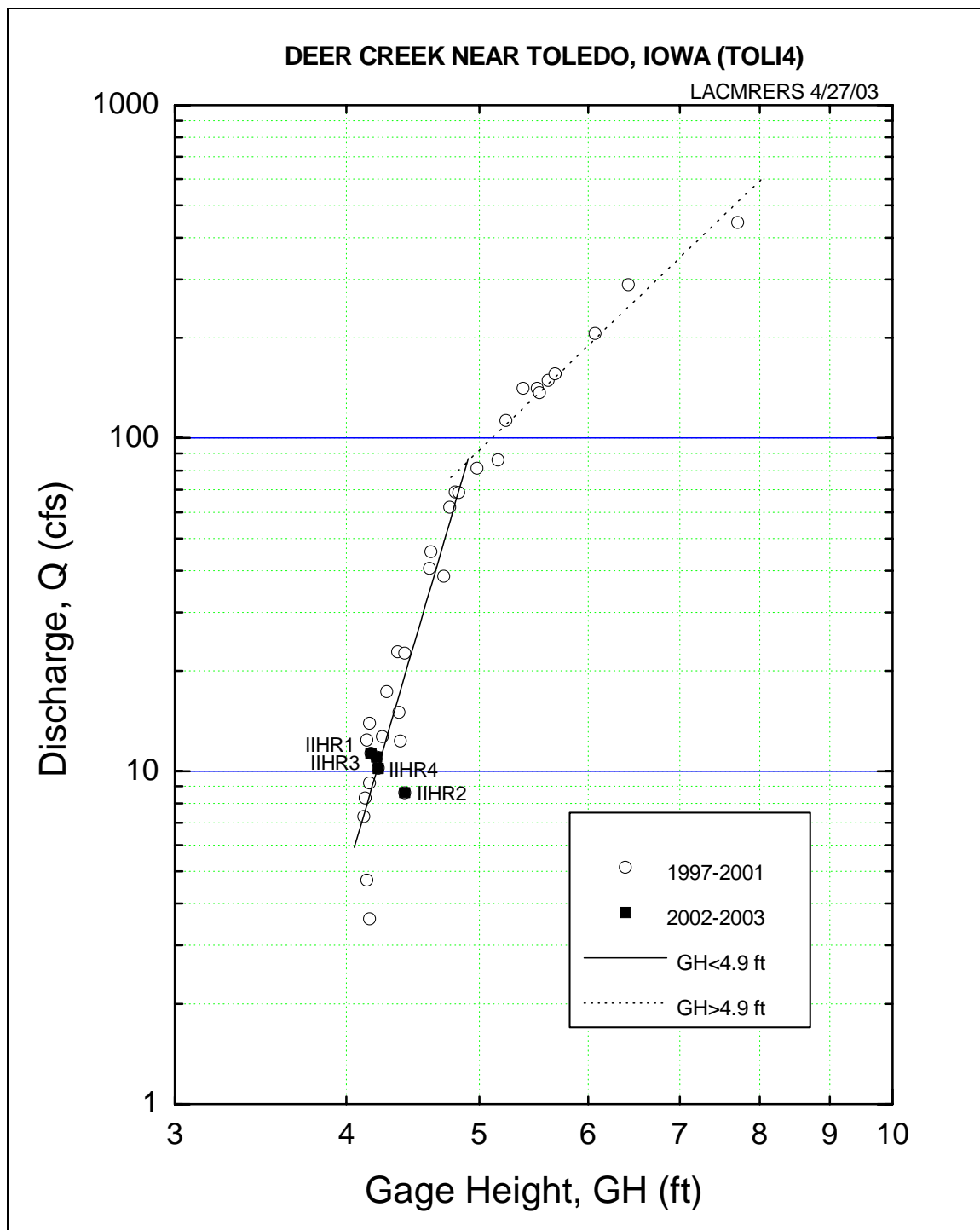


Figure 16 Log-linear stage-discharge relationships developed for TOLI4

DATE: 5/5/2003

TOLI4 - DEER CREEK NEAR TOLEDO, IOWA
 RATING TABLE: LACMRERS, IHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 4.90 FT $Q=10^{-7.785} \cdot GH^{14.073}$

EQUATION 2: GH > 4.90 FT $Q=10^{-0.805} \cdot GH^{3.961}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
3	0.1	0.1	0.2	0.3	0.5	0.7	1.1	1.6	2.4	3.4	
4	4.9	6.9	9.7	13.5	18.6	25.6	34.8	47.1	63.4	84.9	87
5	92.0	100	107	116	125	134	144	155	166	177	97
6	189	202	216	230	245	260	276	293	311	329	159
7	349	369	390	412	435	458	483	509	535	563	243
8	592	622	653	685	718	752	788	825	863	903	352
9	944	986	1029	1074	1121	1169	1218	1269	1322	1376	489
10	1432	1490	1549	1610	1673	1738	1804	1872	1943	2015	657
11	2089	2165	2244	2324	2407	2491	2578	2667	2759	2853	860
12	2949	3047	3148	3252	3358	3466	3577	3691	3808	3927	1100
13	4049	4174	4301	4432	4565	4702	4841	4984	5129	5278	1381
14	5430	5585	5744	5906	6071	6240	6412	6588	6767	6950	1707
15	7137	7327	7521	7719	7921	8127	8336	8550	8768	8990	2079
16	9216										

Table 16 Rating table developed for TOLI4

14. WEST FORK DES MOINES RIVER NEAR WINDOM, MN (WDOM5)

- Gage Description - WDOM5 - W. Des Moines River near Windom, MN
- Stream = West Fork Des Moines River
- Gage Zero = N/A
- Flood Stage = 17.00 feet
- Record Stage = N/A
- Lat 43°53'26" - Long 95°09'35"
- Drainage Area = N/A
- River Mile = 450.8
- Location of Gage = North Side of City of Windom, MN Golf Course.



River-Stage Gaging Station



Downstream View

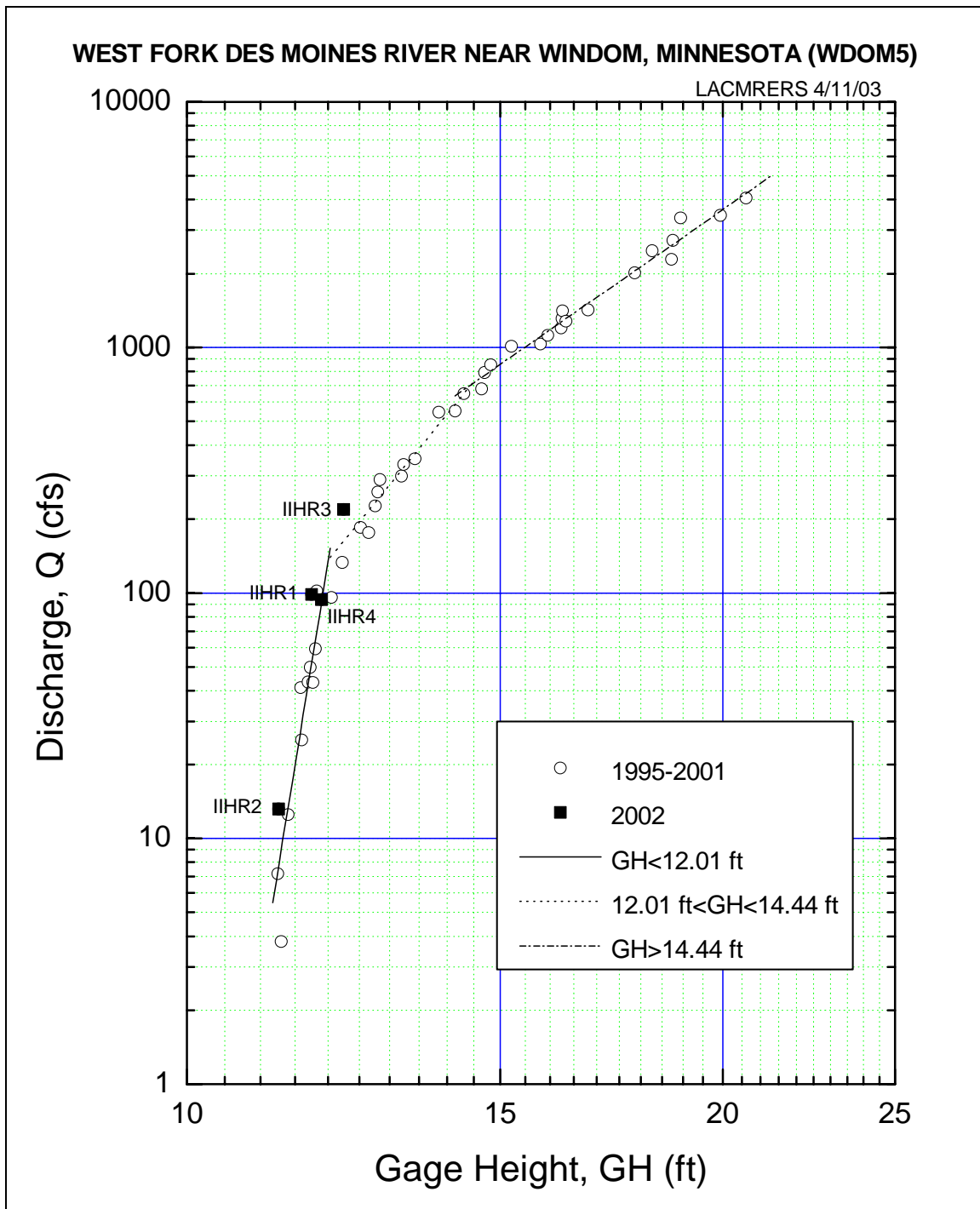


Figure 17 Log-linear stage-discharge relationships developed for WDOM5

DATE: 5/5/2003

WDOM5 - WEST FORK DES MOINES RIVER NEAR WINDOM, MINNESOTA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: GH < 12.01 FT $Q = 10^{-45.910} * GH^{44.505}$

EQUATION 2: 12.01 FT < GH < 14.44 FT $Q = 10^{-7.457} * GH^{8.886}$

EQUATION 3: GH > 14.44 FT $Q = 10^{-3.001} * GH^{5.043}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
10	0.0	0.1	0.1	0.1	0.2	0.3	0.5	0.8	1.2	1.8	
11	2.7	4.1	6.1	9.1	13.4	19.8	29.1	42.6	62.2	90.6	129
12	132	146	157	169	182	195	209	225	241	258	145
13	276	296	317	339	362	387	413	441	470	501	258
14	534	569	606	645	686	717	743	769	796	823	317
15	851	880	910	941	972	1004	1037	1071	1106	1142	327
16	1179	1216	1255	1294	1335	1377	1419	1463	1507	1553	422
17	1600	1648	1697	1748	1799	1852	1906	1961	2018	2076	535
18	2135	2195	2257	2320	2385	2451	2519	2588	2658	2730	669
19	2804	2879	2956	3034	3115	3196	3280	3365	3452	3541	828
20	3632	3724	3818	3915	4013	4113	4215	4320	4426	4534	1013
21	4645	4757	4872	4989	5108	5230	5354	5480	5608	5739	1228
22	5873	6009	6147	6288	6431	6577	6726	6878	7032	7189	1476
23	7348	7511	7676	7845	8016	8190	8368	8548	8731	8918	1759
24	9108	9301	9497	9696	9899	10106	10315	10529	10745	10966	2082
25	11190	11417	11648	11883	12122	12365	12611	12862	13116	13374	2447
26	13637	13903	14174	14449	14728	15012	15300	15592	15889	16190	2859
27	16496	16806	17121	17441	17765	18095	18429	18768	19113	19462	3321
28	19816										

Table 17 Rating table developed for WDOM5

15. BEAVER CREEK NEAR WOODWARD, IA (WWDI4)

- Gage Description - WWDI4 - Beaver Creek near Woodward, IA
- Stream = Beaver Creek
- Gage Zero = N/A feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°47'31" - Long 93°57'20"
- Drainage Area = 280 sq. mi.
- River Mile = N/A
- Location of Gage = 15 ft downstream from bridge on county highway, 3.5 miles downstream from Little Beaver Creek, and 3.5 miles south of Woodward, IA.



River-Stage Gaging Station



Downstream View

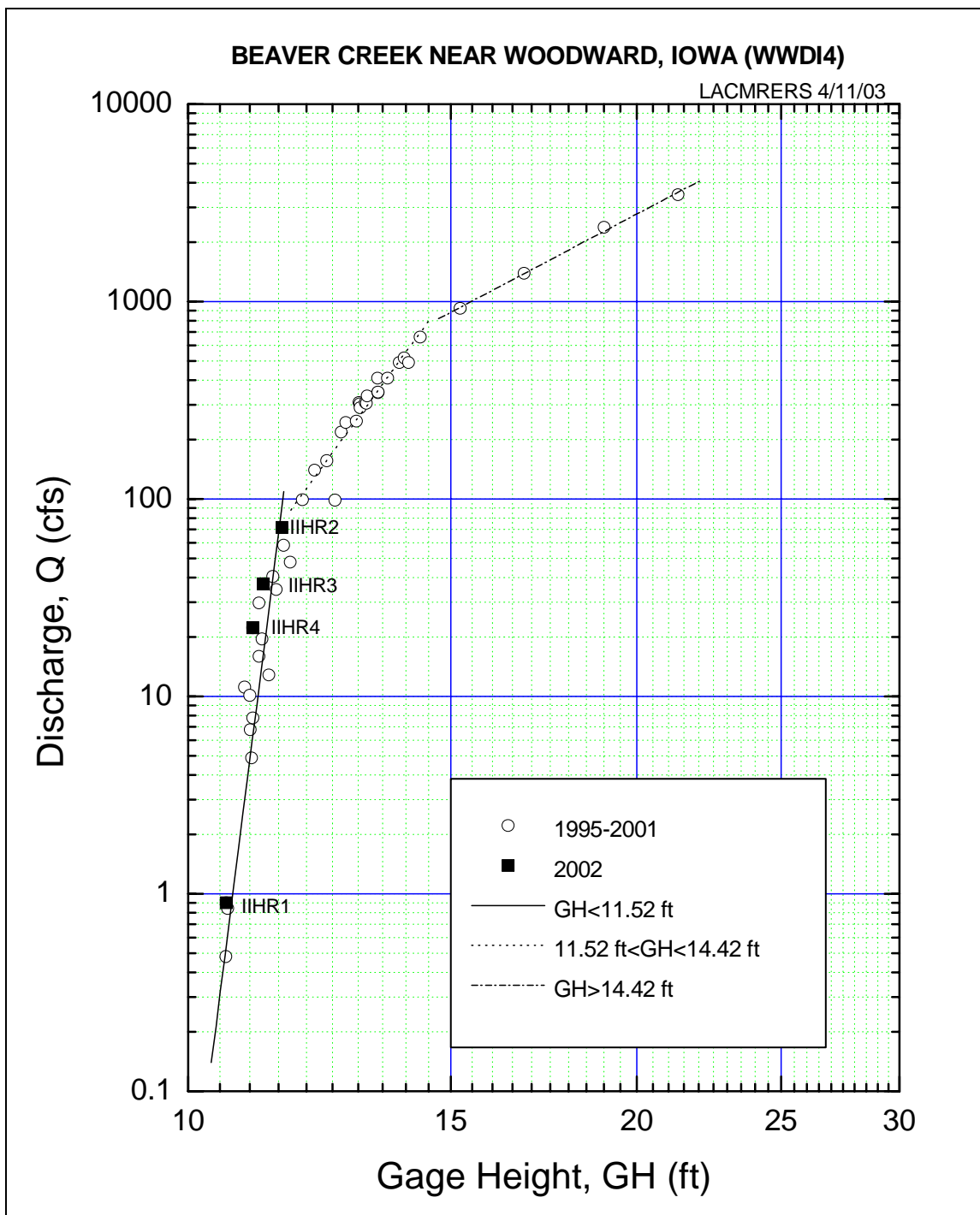


Figure 18 Log-linear stage-discharge relationships developed for WWDI4

DATE: 5/5/2003

WWDI4 - BEAVER CREEK NEAR WOODWARD, IOWA
 RATING TABLE: LACMRERS, IIHR - HYDROSCIENCE & ENGINEERING

EQUATION 1: $GH < 11.52 \text{ FT}$ $Q = 10^{-61.171} * GH^{59.393}$

EQUATION 2: $11.52 \text{ FT} < GH < 14.42 \text{ FT}$ $Q = 10^{-9.125} * GH^{10.356}$

EQUATION 3: $GH > 14.42 \text{ FT}$ $Q = 10^{-1.747} * GH^{3.990}$

GAGE HEIGHT, GH (FEET)	DISCHARGE, Q, IN CUBIC FEET PER SECOND										DIFF. IN DISCHARGE PER FOOT
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
10	0	0	0.1	0.1	0.2	0.3	0.5	0.9	1.6	2.8	
11	4.8	8.2	14	23.7	40	67.1	79.2	86.5	94.5	103	108
12	113	123	134	145	158	172	186	202	219	238	145
13	258	279	302	326	353	381	411	444	478	515	297
14	555	598	643	691	743	771	792	814	836	859	327
15	882	906	930	955	980	1006	1032	1058	1086	1113	259
16	1141	1170	1199	1229	1260	1291	1322	1354	1387	1420	312
17	1454	1488	1523	1559	1595	1632	1670	1708	1747	1786	372
18	1826	1867	1909	1951	1994	2037	2081	2126	2172	2219	440
19	2266	2314	2363	2412	2462	2513	2565	2618	2671	2725	515
20	2780	2836	2893	2951	3009	3068	3129	3190	3251	3314	598
21	3378	3443	3508	3575	3642	3711	3780	3850	3921	3994	689
22	4067	4141	4217	4293	4370	4448	4528	4608	4690	4773	789
23	4856	4941	5027	5114	5202	5291	5382	5473	5566	5660	899
24	5755	5851	5949	6047	6147	6249	6351	6455	6559	6666	1018
25	6773	6882	6992	7103	7216	7330	7445	7562	7680	7800	1147
26	7920										

Table 18 Rating table developed for WWDI4

APPENDIX I

ANALYSIS OF FEILD VELOCITY DATA FOR FIFTEEN GAGING STATIONS

AGNI4_9-5-02 (TRIP 1)

AGNI4_9-5-02 (TRIP 1)												
Gage = 7.26' at 12:00												
W = 115'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
IP												(deg)
	0.0											
1.000	4.6	4.6	1.3	0.6	5	53	0.23	0.23	5.98	1.35	360	-270
1.000	9.2	4.6	1.8	0.6	5	40	0.29	0.29	8.28	2.43	360	-270
1.000	13.8	4.6	2.1	0.6	5	28	0.41	0.41	9.66	3.98	360	-270
1.000	18.4	4.6	2.4	0.6	10	47	0.49	0.49	11.04	5.38	360	-270
1.000	23.0	4.6	2.4	0.6	10	48	0.48	0.48	11.04	5.27	360	-270
1.000	27.6	4.6	2.6	0.6	10	62	0.37	0.37	11.96	4.47	360	-270
1.000	32.2	4.6	2.9	0.6	10	46	0.50	0.50	13.34	6.63	360	-270
1.000	36.8	4.6	3.0	0.8	10	46	0.50	0.54	13.80	7.46	360	-270
1.000	36.8	0.0	3.0	0.2	10	39	0.58	0.00	0.00	0.00	360	-270
1.000	41.4	4.6	3.8	0.8	9	42	0.49	0.56	17.48	9.86	360	-270
1.000	41.4	0.0	3.8	0.2	9	32	0.64	0.00	0.00	0.00	360	-270
1.000	46.0	4.6	4.1	0.8	9	44	0.47	0.52	18.86	9.79	360	-270
1.000	46.0	0.0	4.1	0.2	10	40	0.57	0.00	0.00	0.00	360	-270
1.000	50.6	4.6	4.1	0.8	8	40	0.46	0.52	18.86	9.79	360	-270
1.000	50.6	0.0	4.1	0.2	14	55	0.58	0.00	0.00	0.00	360	-270
1.000	55.2	4.6	4.3	0.8	6	35	0.40	0.48	19.78	9.41	360	-270
1.000	55.2	0.0	4.3	0.2	10	41	0.56	0.00	0.00	0.00	360	-270
1.000	59.8	4.6	4.2	0.8	10	55	0.42	0.47	19.32	9.17	360	-270
1.000	59.8	0.0	4.2	0.2	10	43	0.53	0.00	0.00	0.00	360	-270
1.000	64.4	4.6	4.3	0.8	5	42	0.28	0.37	19.78	7.41	360	-270
1.000	64.4	0.0	4.3	0.2	9	44	0.47	0.00	0.00	0.00	360	-270
1.000	69.0	4.6	4.4	0.8	5	34	0.34	0.39	20.24	7.80	360	-270
1.000	69.0	0.0	4.4	0.2	8	43	0.43	0.00	0.00	0.00	360	-270
1.000	73.6	4.6	4.1	0.8	5	39	0.30	0.34	18.86	6.47	360	-270
1.000	73.6	0.0	4.1	0.2	7	42	0.39	0.00	0.00	0.00	360	-270
1.000	78.2	4.6	4.0	0.8	6	56	0.25	0.30	18.40	5.49	360	-270
1.000	78.2	0.0	4.0	0.2	5	34	0.34	0.00	0.00	0.00	360	-270
1.000	82.8	4.6	3.7	0.8	2	32	0.16	0.22	17.02	3.82	360	-270
1.000	82.8	0.0	3.7	0.2	3	24	0.29	0.00	0.00	0.00	360	-270
1.000	87.4	4.6	3.4	0.8	3	40	0.18	0.22	15.64	3.49	360	-270
1.000	87.4	0.0	3.4	0.2	3	27	0.26	0.00	0.00	0.00	360	-270
1.000	92.0	4.6	3.0	0.8	2	28	0.18	0.19	13.80	2.66	360	-270
1.000	92.0	0.0	3.0	0.2	4	46	0.21	0.00	0.00	0.00	360	-270
1.000	96.6	4.6	2.7	0.6	4	36	0.26	0.26	12.42	3.27	360	-270
1.000	101.2	4.6	2.0	0.6	1	55	0.06	0.06	9.20	0.53	360	-270
0.000	105.8	4.6	1.8	0.6	2	47	0.11	0.11	8.28	0.00	270	-180
-0.574	110.4	4.6	1.3	0.6	0	0	0.00	0.00	5.98	0.00	235	-145
	115.0											
339.02										125.95		

AGNI4_9-26-02 (TRIP 2)

AGNI4_9-26-02 (TRIP 2)												
Gage = 6.95' at 10:00												
W = 113'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
0.000	3.6	3.6	1.1	0.6	3	81.0	0.10	0.10	3.96	0.00	270	-180
0.000	8.2	4.6	1.6	0.6	3	65.5	0.12	0.12	7.36	0.00	270	-180
0.766	12.8	4.6	1.9	0.6	4	69.0	0.15	0.15	8.74	0.98	320	-230
0.766	17.4	4.6	2.0	0.6	3	56.5	0.14	0.14	9.20	0.95	320	-230
0.000	22.0	4.6	2.3	0.6	3	59.0	0.13	0.13	10.58	0.00	90	0
0.940	26.6	4.6	2.3	0.6	2	60.0	0.09	0.09	10.58	0.91	340	-250
0.940	31.2	4.6	2.6	0.6	3	54.0	0.14	0.14	11.96	1.58	340	-250
0.940	35.8	4.6	3.2	0.8	3	45.0	0.17	0.18	14.72	2.52	340	-250
0.940	35.8	0.0	3.2	0.2	3	36.4	0.20	0.00	0.00	0.00	340	-250
0.940	40.4	4.6	3.6	0.8	3	44.2	0.17	0.17	16.56	2.68	340	-250
0.940	40.4	0.0	3.6	0.2	3	41.5	0.18	0.00	0.00	0.00	340	-250
0.940	45.0	4.6	3.8	0.8	3	45.6	0.16	0.17	17.48	2.81	340	-250
0.940	45.0	0.0	3.8	0.2	3	41.0	0.18	0.00	0.00	0.00	340	-250
0.940	49.6	4.6	4.1	0.8	3	45.7	0.16	0.17	18.86	2.95	340	-250
0.940	49.6	0.0	4.1	0.2	3	43.6	0.17	0.00	0.00	0.00	340	-250
0.940	54.2	4.6	4.1	0.8	3	52.3	0.14	0.16	18.86	2.79	340	-250
0.940	54.2	0.0	4.1	0.2	3	43.4	0.17	0.00	0.00	0.00	340	-250
0.940	58.8	4.6	4.0	0.8	3	56.7	0.13	0.15	18.40	2.65	340	-250
0.940	58.8	0.0	4.0	0.2	3	42.9	0.17	0.00	0.00	0.00	340	-250
0.940	63.4	4.6	4.0	0.8	3	67.3	0.12	0.14	18.40	2.38	340	-250
0.940	63.4	0.0	4.0	0.2	3	47.0	0.16	0.00	0.00	0.00	340	-250
0.766	68.0	4.6	4.1	0.8	3	77.8	0.10	0.13	18.86	1.87	320	-230
0.766	68.0	0.0	4.1	0.2	3	48.0	0.16	0.00	0.00	0.00	320	-230
0.940	72.6	4.6	3.9	0.8	2	58.0	0.09	0.13	17.94	2.27	340	-250
0.940	72.6	0.0	3.9	0.2	3	42.1	0.18	0.00	0.00	0.00	340	-250
0.940	77.2	4.6	3.8	0.8	3	50.7	0.15	0.14	17.48	2.35	340	-250
0.940	77.2	0.0	3.8	0.2	3	55.5	0.14	0.00	0.00	0.00	340	-250
0.940	81.8	4.6	3.2	0.8	3	115.0	0.08	0.10	14.72	1.36	340	-250
0.940	81.8	0.0	3.2	0.2	3	64.4	0.12	0.00	0.00	0.00	340	-250
0.940	86.4	4.6	3.1	0.8	2	0.0	0.00	0.07	14.26	0.98	340	-250
0.940	86.4	0.0	3.1	0.2	2	34.2	0.15	0.00	0.00	0.00	340	-250
1.000	91.0	4.6	2.8	0.6	0	0.0	0.00	0.00	12.88	0.00	360	-270
0.000	95.6	4.6	2.8	0.6	1	58.0	0.06	0.06	12.88	0.00	270	-180
0.866	100.2	4.6	1.8	0.6	2	81.6	0.07	0.07	8.28	0.52	30	60
1.000	104.8	4.6	1.7	0.6	0	0.0	0.00	0.00	7.82	0.00	360	-270
1.000	109.4	4.6	1.2	0.6	0	0.0	0.00	0.00	5.52	0.00	360	-270
	113.0											
316.30										32.55		

AGNI4_10-30-02 (TRIP 3)

AGNI4_10-30-02 (TRIP 3)												
Gage = 7.54' at 13:00												
W = 116'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
IP												(deg)
	0.0											
1.000	4.6	4.6	1.5	0.6	30	185.4	0.37	0.37	6.90	2.59	360	-270
1.000	9.2	4.6	2.0	0.6	10	49.1	0.47	0.47	9.20	4.30	360	-270
1.000	13.8	4.6	2.3	0.6	10	44.2	0.52	0.52	10.58	5.47	360	-270
1.000	18.4	4.6	2.6	0.6	10	32.5	0.70	0.70	11.96	8.33	360	-270
0.940	23.0	4.6	2.6	0.6	10	30.8	0.73	0.73	11.96	8.25	340	-250
0.985	27.6	4.6	2.8	0.6	10	34.2	0.66	0.66	12.88	8.41	350	-260
0.985	32.2	4.6	3.0	0.6	10	27.5	0.82	0.82	13.80	11.14	350	-260
0.985	36.8	4.6	3.4	0.8	10	30.7	0.74	0.79	15.64	12.12	350	-260
0.985	36.8	0.0	3.4	0.2	10	26.9	0.84	0.00	0.00	0.00	350	-260
0.985	41.4	4.6	4.1	0.8	10	29.9	0.76	0.83	18.86	15.37	350	-260
0.985	41.4	0.0	4.1	0.2	10	25.0	0.90	0.00	0.00	0.00	350	-260
0.966	46.0	4.6	4.1	0.8	10	29.2	0.77	0.85	18.86	15.51	345	-255
0.966	46.0	0.0	4.1	0.2	10	24.2	0.93	0.00	0.00	0.00	345	-255
0.985	50.6	4.6	4.2	0.8	10	29.1	0.78	0.82	19.32	15.65	350	-260
0.985	50.6	0.0	4.2	0.2	10	25.9	0.87	0.00	0.00	0.00	350	-260
0.985	55.2	4.6	4.4	0.8	10	32.4	0.70	0.76	20.24	15.13	350	-260
0.985	55.2	0.0	4.4	0.2	10	27.5	0.82	0.00	0.00	0.00	350	-260
0.985	59.8	4.6	4.4	0.8	10	29.1	0.78	0.81	20.24	16.20	350	-260
0.985	59.8	0.0	4.4	0.2	10	26.5	0.85	0.00	0.00	0.00	350	-260
0.985	64.4	4.6	4.6	0.8	10	36.1	0.63	0.71	21.16	14.89	350	-260
0.985	64.4	0.0	4.6	0.2	10	28.2	0.80	0.00	0.00	0.00	350	-260
0.985	69.0	4.6	4.7	0.8	10	40.1	0.57	0.62	21.62	13.29	350	-260
0.985	69.0	0.0	4.7	0.2	10	33.3	0.68	0.00	0.00	0.00	350	-260
0.985	73.6	4.6	4.5	0.8	10	45.2	0.51	0.58	20.70	11.87	350	-260
0.985	73.6	0.0	4.5	0.2	10	34.4	0.66	0.00	0.00	0.00	350	-260
0.985	78.2	4.6	4.3	0.8	10	50.3	0.46	0.50	19.78	9.67	350	-260
0.985	78.2	0.0	4.3	0.2	10	42.5	0.54	0.00	0.00	0.00	350	-260
0.966	82.8	4.6	3.9	0.8	5	28.0	0.41	0.45	17.94	7.84	345	-255
0.966	82.8	0.0	3.9	0.2	5	23.2	0.49	0.00	0.00	0.00	345	-255
0.966	87.4	4.6	3.5	0.8	5	48.8	0.24	0.33	16.10	5.17	345	-255
0.966	87.4	0.0	3.5	0.2	5	27.4	0.42	0.00	0.00	0.00	345	-255
0.966	92.0	4.6	3.2	0.8	5	42.2	0.28	0.31	14.72	4.44	345	-255
0.966	92.0	0.0	3.2	0.2	5	33.7	0.35	0.00	0.00	0.00	345	-255
0.966	96.6	4.6	2.9	0.6	2	29.4	0.17	0.17	13.34	2.16	345	-255
0.643	101.6	5.0	2.2	0.6	3	32.9	0.22	0.22	11.00	1.55	310	-220
0.643	106.2	4.6	1.9	0.6	2	43.0	0.12	0.12	8.74	0.68	310	-220
-0.174	110.8	4.6	1.4	0.6	1	57.0	0.06	0.06	6.44	-0.06	260	-170
	116.0											
										361.98	209.96	

AGNI4_12-12-02 (TRIP 4)

AGNI4_12-12-02 (TRIP 4)												
Gage = 7.21' at 15:00												
W = 120'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	5.0	5.0	1.00	0.6	2	15.0	0.16	0.16	5.00	0.79	360	-270
1.000	10.0	5.0	1.53	0.6	6	35.0	0.20	0.20	7.65	1.50	360	-270
1.000	15.0	5.0	1.89	0.6	10	55.9	0.20	0.20	9.45	1.92	360	-270
1.000	20.0	5.0	2.30	0.6	10	46.2	0.24	0.24	11.50	2.75	360	-270
1.000	25.0	5.0	2.89	0.6	10	44.6	0.25	0.25	14.45	3.56	360	-270
1.000	30.0	5.0	3.40	0.6	10	49.3	0.23	0.23	17.00	3.84	360	-270
1.000	35.0	5.0	3.86	0.6	10	34.9	0.31	0.31	19.30	5.91	360	-270
1.000	40.0	5.0	4.42	0.6	10	37.5	0.29	0.29	22.10	6.34	360	-270
1.000	45.0	5.0	4.78	0.6	10	29.4	0.36	0.36	23.90	8.54	360	-270
1.000	50.0	5.0	4.80	0.6	10	33.0	0.32	0.32	24.00	7.73	360	-270
1.000	55.0	5.0	4.85	0.6	10	28.3	0.37	0.37	24.25	8.98	360	-270
1.000	60.0	5.0	5.05	0.6	10	29.1	0.36	0.36	25.25	9.11	360	-270
1.000	65.0	5.0	5.15	0.6	10	32.8	0.32	0.32	25.75	8.33	360	-270
1.000	70.0	5.0	5.20	0.6	10	32.8	0.32	0.32	26.00	8.42	360	-270
1.000	75.0	5.0	5.10	0.6	10	41.4	0.26	0.26	25.50	6.70	360	-270
1.000	80.0	5.0	4.87	0.6	10	39.9	0.27	0.27	24.35	6.61	360	-270
1.000	85.0	5.0	4.55	0.6	10	57.1	0.20	0.20	22.75	4.53	360	-270
1.000	90.0	5.0	4.00	0.6	2	18.6	0.13	0.13	20.00	2.68	360	-270
1.000	95.0	5.0	3.15	0.6	6	54.8	0.14	0.14	15.75	2.14	360	-270
1.000	100.0	5.0	2.35	0.6	0	0.0	0.00	0.00	11.75	0.00	360	-270
1.000	105.0	5.0	1.62	0.6	0	0.0	0.00	0.00	8.10	0.00	360	-270
1.000	110.0	5.0	1.30	0.6	0	0.0	0.00	0.00	6.50	0.00	360	-270
1.000	115.0	5.0	0.85	0.6	0	0.0	0.00	0.00	4.25	0.00	360	-270
	120.0											
										394.55	100.39	

BPLI4_9-3-02 (TRIP 1)

BPLI4_9-3-02 (TRIP 1)													
Gage = 7.00' at 16:15													
W = 180'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow	Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)		Flow Dir
	IP												(deg)
	0.0												
1.000	7.2	7.2	1.30	0.6	20	43	1.04	1.04	9.36	9.77	360	-270	
1.000	14.4	7.2	1.40	0.6	20	38.1	1.18	1.18	10.08	11.85	360	-270	
1.000	21.6	7.2	1.30	0.6	20	43	1.04	1.04	9.36	9.77	360	-270	
1.000	28.8	7.2	1.40	0.6	25	46	1.22	1.22	10.08	12.26	360	-270	
1.000	36.0	7.2	0.90	0.6	20	36	1.24	1.24	6.48	8.05	360	-270	
1.000	43.2	7.2	1.90	0.6	25	37	1.51	1.51	13.68	20.63	360	-270	
1.000	50.4	7.2	2.20	0.6	20	34	1.32	1.32	15.84	20.83	360	-270	
1.000	57.6	7.2	2.00	0.6	20	27	1.65	1.65	14.40	23.78	360	-270	
1.000	64.8	7.2	1.80	0.6	25	31	1.80	1.80	12.96	23.28	360	-270	
1.000	72.0	7.2	2.10	0.6	20	28	1.59	1.59	15.12	24.09	360	-270	
1.000	79.2	7.2	2.10	0.6	20	28	1.59	1.59	15.12	24.09	360	-270	
1.000	86.4	7.2	2.40	0.6	20	25	1.78	1.78	17.28	30.79	360	-270	
1.000	93.6	7.2	2.90	0.6	30	40	1.67	1.67	20.88	34.91	360	-270	
1.000	100.8	7.2	3.60	0.8	30	34	1.96	1.73	25.92	44.73	360	-270	
1.000	100.8	0.0	3.60	0.2	20	30	1.49	0.00	0.00	0.00	360	-270	
1.000	108.0	7.2	3.90	0.8	30	31	2.15	1.87	28.08	52.58	360	-270	
1.000	108.0	0.0	3.90	0.2	25	35	1.59	0.00	0.00	0.00	360	-270	
1.000	115.2	7.2	4.50	0.8	25	25	2.22	1.83	32.40	59.35	360	-270	
1.000	115.2	0.0	4.50	0.2	20	31	1.44	0.00	0.00	0.00	360	-270	
1.000	122.4	7.2	4.60	0.8	30	30	2.22	1.83	33.12	60.67	360	-270	
1.000	122.4	0.0	4.60	0.2	20	31	1.44	0.00	0.00	0.00	360	-270	
1.000	129.6	7.2	4.30	0.8	25	25	2.22	2.04	30.96	63.14	360	-270	
1.000	129.6	0.0	4.30	0.2	25	30	1.86	0.00	0.00	0.00	360	-270	
1.000	136.8	7.2	6.30	0.8	25	26	2.14	1.78	45.36	80.73	360	-270	
1.000	136.8	0.0	6.30	0.2	35	55	1.42	0.00	0.00	0.00	360	-270	
1.000	144.0	7.2	7.00	0.8	45	45	2.22	2.04	50.40	102.78	360	-270	
1.000	144.0	0.0	7.00	0.2	25	30	1.86	0.00	0.00	0.00	360	-270	
1.000	151.2	7.2	6.50	0.8	25	28	1.99	1.89	46.80	88.52	360	-270	
1.000	151.2	0.0	6.50	0.2	25	31	1.80	0.00	0.00	0.00	360	-270	
1.000	158.4	7.2	5.30	0.8	15	36	0.94	1.13	38.16	42.96	360	-270	
1.000	158.4	0.0	5.30	0.2	20	34	1.32	0.00	0.00	0.00	360	-270	
1.000	165.6	7.2	4.00	0.8	10	57	0.40	0.68	28.80	19.70	360	-270	
0.707	165.6	0.0	4.00	0.2	15	35	0.96	0.00	0.00	0.00	45	45	
0.000	172.8	7.2	2.30	0.6	10	35	0.65	0.65	16.56	0.00	90	0	
	180.0												
547.20										869.24			

BPLI4_9-24-02 (TRIP 2)

BPLI4_9-24-02 (TRIP 2)												
Gage = 6.61' at 14:45												
W = 205'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
IP												(deg)
	0.0											
1.000	8.2	8.2	1.00	0.6	20	45.9	0.98	0.98	8.20	8.03	360	-270
1.000	16.4	8.2	1.00	0.6	20	36.7	1.22	1.22	8.20	10.00	360	-270
1.000	24.6	8.2	1.20	0.6	20	33.4	1.34	1.34	9.84	13.17	360	-270
1.000	32.8	8.2	1.00	0.6	20	35.2	1.27	1.27	8.20	10.42	360	-270
1.000	41.0	8.2	1.20	0.6	20	34.1	1.31	1.31	9.84	12.90	360	-270
1.000	49.2	8.2	1.30	0.6	20	28.1	1.59	1.59	10.66	16.92	360	-270
1.000	57.4	8.2	1.80	0.6	20	28.3	1.58	1.58	14.76	23.27	360	-270
1.000	65.6	8.2	1.70	0.6	20	24.8	1.80	1.80	13.94	25.04	360	-270
1.000	73.8	8.2	1.70	0.6	20	25.4	1.75	1.75	13.94	24.45	360	-270
1.000	82.0	8.2	1.90	0.6	20	26.4	1.69	1.69	15.58	26.31	360	-270
1.000	90.2	8.2	2.10	0.6	20	25.8	1.73	1.73	17.22	29.74	360	-270
1.000	98.4	8.2	2.50	0.6	20	27.1	1.65	1.65	20.50	33.73	360	-270
1.000	106.6	8.2	3.50	0.8	20	30.8	1.45	1.68	28.70	48.11	360	-270
1.000	106.6	0.0	3.50	0.2	20	23.4	1.90	0.00	0.00	0.00	360	-270
1.000	114.8	8.2	4.00	0.8	20	25.0	1.78	1.94	32.80	63.64	360	-270
1.000	114.8	0.0	4.00	0.2	20	21.2	2.10	0.00	0.00	0.00	360	-270
1.000	123.0	8.2	4.20	0.8	20	26.9	1.66	1.97	34.44	67.79	360	-270
1.000	123.0	0.0	4.20	0.2	20	19.5	2.28	0.00	0.00	0.00	360	-270
1.000	131.2	8.2	4.30	0.8	10	14.5	1.54	1.85	35.26	65.19	360	-270
1.000	131.2	0.0	4.30	0.2	20	20.6	2.16	0.00	0.00	0.00	360	-270
1.000	139.4	8.2	6.60	0.8	20	23.9	1.86	1.90	54.12	102.56	360	-270
1.000	139.4	0.0	6.60	0.2	20	23.1	1.93	0.00	0.00	0.00	360	-270
1.000	147.6	8.2	6.70	0.8	20	22.8	1.95	1.99	54.94	109.19	360	-270
1.000	147.6	0.0	6.70	0.2	20	22.0	2.02	0.00	0.00	0.00	360	-270
1.000	155.8	8.2	4.40	0.8	20	32.3	1.38	1.39	36.08	50.06	360	-270
1.000	155.8	0.0	4.40	0.2	20	32.1	1.39	0.00	0.00	0.00	360	-270
0.707	164.0	8.2	3.70	0.8	10	26.2	0.86	0.88	30.34	18.78	45	45
0.707	164.0	0.0	3.70	0.2	20	50.5	0.89	0.00	0.00	0.00	45	45
1.000	172.2	8.2	2.10	0.6	12	49.0	0.56	0.56	17.22	9.61	360	-270
-0.423	180.4	8.2	0.80	0.6	20	52.0	0.87	0.87	6.56	-2.40	115	-25
-0.940	188.6	8.2	2.90	0.6	5	56.0	0.21	0.21	23.78	-4.80	160	-70
-0.985	196.8	8.2	4.80	0.8	0	0.0	0.00	0.09	39.36	-3.30	170	-80
-0.985	196.8	0.0	4.80	0.2	4	58.0	0.17	0.00	0.00	0.00	170	-80
	205.0											
									544.48	758.41		

BPLI4_11-1-02 (TRIP 3)

BPLI4_11-1-02 (TRIP 3)													
Gage = 6.86' at 12:00													
W = 207'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow	Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)		Flow Dir
	IP												(deg)
	0.0												
1.000	8.0	8.0	1.30	0.6	20	38.4	1.17	1.17	10.40	12.13	0		90
1.000	16.0	8.0	1.70	0.6	20	39.3	1.14	1.14	13.60	15.51	0		90
0.996	24.0	8.0	1.50	0.6	20	44.2	1.02	1.02	12.00	12.14	5		85
0.996	32.0	8.0	1.30	0.6	20	37.6	1.19	1.19	10.40	12.34	5		85
0.996	40.0	8.0	1.30	0.6	20	36.5	1.23	1.23	10.40	12.70	5		85
1.000	48.0	8.0	1.80	0.6	20	40.3	1.11	1.11	14.40	16.02	0		90
1.000	56.0	8.0	2.30	0.6	20	34.0	1.32	1.32	18.40	24.20	0		90
0.996	64.0	8.0	2.20	0.6	20	28.7	1.55	1.55	17.60	27.26	5		85
1.000	72.0	8.0	2.40	0.6	20	29.3	1.52	1.52	19.20	29.24	0		90
1.000	80.0	8.0	2.50	0.6	20	28.9	1.54	1.54	20.00	30.88	0		90
1.000	88.0	8.0	2.70	0.6	20	23.3	1.91	1.91	21.60	41.27	0		90
0.996	96.0	8.0	3.10	0.8	20	28.2	1.58	1.68	24.80	41.47	5		85
0.996	96.0	0.0	3.10	0.2	20	25.1	1.77	0.00	0.00	0.00	5		85
0.996	104.0	8.0	3.80	0.8	20	34.6	1.29	1.55	30.40	46.88	5		85
0.996	104.0	0.0	3.80	0.2	20	24.7	1.80	0.00	0.00	0.00	5		85
1.000	112.0	8.0	4.50	0.8	20	29.8	1.50	1.82	36.00	65.63	0		90
1.000	112.0	0.0	4.50	0.2	20	20.7	2.15	0.00	0.00	0.00	0		90
1.000	120.0	8.0	4.70	0.8	20	24.4	1.83	2.01	37.60	75.70	0		90
1.000	120.0	0.0	4.70	0.2	20	20.2	2.20	0.00	0.00	0.00	0		90
1.000	128.0	8.0	4.50	0.8	20	25.5	1.75	2.08	36.00	74.92	0		90
1.000	128.0	0.0	4.50	0.2	20	18.4	2.41	0.00	0.00	0.00	0		90
1.000	136.0	8.0	4.80	0.8	20	34.2	1.31	1.84	38.40	70.49	0		90
1.000	136.0	0.0	4.80	0.2	20	18.8	2.36	0.00	0.00	0.00	0		90
1.000	144.0	8.0	5.80	0.8	20	21.9	2.03	2.31	46.40	107.04	0		90
1.000	144.0	0.0	5.80	0.2	20	17.2	2.58	0.00	0.00	0.00	0		90
0.996	152.0	8.0	5.20	0.8	20	19.7	2.26	2.36	41.60	97.90	5		85
0.996	152.0	0.0	5.20	0.2	20	18.0	2.47	0.00	0.00	0.00	5		85
0.966	160.0	8.0	4.30	0.8	20	30.8	1.45	1.44	34.40	47.72	15		75
0.966	160.0	0.0	4.30	0.2	20	31.4	1.42	0.00	0.00	0.00	15		75
0.966	168.0	8.0	3.50	0.8	20	62.2	0.73	0.73	28.00	19.76	15		75
0.966	168.0	0.0	3.50	0.2	15	46.2	0.73	0.00	0.00	0.00	15		75
0.000	176.0	8.0	2.70	0.6	10	42.7	0.53	0.59	21.60	0.00	90		0
0.000	184.0	8.0	1.10	0.6	10	34.8	0.65	0.00	8.80	0.00	90		0
-0.087	192.0	8.0	3.80	0.8	2	37.8	0.13	0.22	30.40	-0.57	95		-5
-0.087	192.0	0.0	3.80	0.2	5	39.7	0.30	0.00	0.00	0.00	95		-5
-1.000	200.0	8.0	5.00	0.8	2	50.6	0.11	0.16	40.00	-6.31	180		-90
-1.000	200.0	0.0	5.00	0.2	5	57.3	0.21	0.00	0.00	0.00	180		-90
	207.0												
										622.40	874.30		

BPLI4_12-6-02 (TRIP 4)

BPLI4_12-6-02 (TRIP 4)												
Gage = 6.27' at 13:00												
W = 174'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	7.0	7.0	0.70	0.6	5	44.8	0.26	0.26	4.90	1.29	0	90
1.000	14.0	7.0	0.50	0.6	0	0	0	0.00	3.50	0.00	0	90
1.000	21.0	7.0	0.00	0.6	0	0	0	0.00	0.00	0.00	0	90
1.000	28.0	7.0	0.00	0.6	0	0	0	0.00	0.00	0.00	0	90
1.000	35.0	7.0	0.70	0.6	5	36.8	0.32	0.32	4.90	1.56	0	90
1.000	42.0	7.0	1.00	0.6	10	56.8	0.41	0.41	7.00	2.84	0	90
1.000	49.0	7.0	1.40	0.6	10	50.5	0.45	0.45	9.80	4.46	0	90
1.000	56.0	7.0	1.60	0.6	10	56.0	0.41	0.41	11.20	4.61	0	90
1.000	63.0	7.0	1.70	0.6	10	38.8	0.59	0.59	11.90	6.98	0	90
1.000	70.0	7.0	1.60	0.6	10	32.8	0.69	0.69	11.20	7.73	0	90
0.996	77.0	7.0	1.90	0.6	15	37.8	0.89	0.89	13.30	11.83	5	85
0.996	84.0	7.0	2.00	0.8	15	42.8	0.79	0.83	14.00	11.63	5	85
0.996	91.0	7.0	2.30	0.2	15	38.5	0.88	0.00	16.10	0.00	5	85
1.000	98.0	7.0	3.00	0.8	15	44.8	0.76	0.84	21.00	17.70	0	90
0.996	98.0	0.0	3.00	0.2	20	48.4	0.93	0.00	0.00	0.00	5	85
1.000	105.0	7.0	3.80	0.8	20	55.3	0.82	0.97	26.60	25.93	0	90
1.000	105.0	0.0	3.80	0.2	20	39.5	1.13	0.00	0.00	0.00	0	90
1.000	112.0	7.0	4.30	0.8	20	46.9	0.96	1.11	30.10	33.39	0	90
1.000	112.0	0.0	4.30	0.2	20	35.5	1.26	0.00	0.00	0.00	0	90
1.000	119.0	7.0	4.00	0.8	20	47.5	0.95	1.15	28.00	32.10	0	90
1.000	119.0	0.0	4.00	0.2	20	33.2	1.35	0.00	0.00	0.00	0	90
1.000	126.0	7.0	4.10	0.8	20	48.4	0.93	1.10	28.70	31.47	0	90
1.000	126.0	0.0	4.10	0.2	20	35.4	1.26	0.00	0.00	0.00	0	90
1.000	133.0	7.0	5.20	0.8	20	44.8	1.00	1.10	36.40	39.92	0	90
0.996	133.0	0.0	5.20	0.2	20	37.6	1.19	0.00	0.00	0.00	5	85
1.000	140.0	7.0	5.00	0.8	20	39.3	1.14	1.28	35.00	44.85	0	90
1.000	140.0	0.0	5.00	0.2	20	31.4	1.42	0.00	0.00	0.00	0	90
1.000	147.0	7.0	4.50	0.8	20	43.2	1.04	1.22	31.50	38.28	0	90
0.996	147.0	0.0	4.50	0.2	20	32.1	1.39	0.00	0.00	0.00	5	85
1.000	154.0	7.0	3.50	0.8	20	57.5	0.78	0.80	24.50	19.69	0	90
0.966	154.0	0.0	3.50	0.2	20	54.8	0.82	0.00	0.00	0.00	15	75
0.940	161.0	7.0	2.60	0.6	10	63.9	0.36	0.36	18.20	6.21	20	70
1.000	168.0	7.0	1.50	0.6	0	0.0	0.00	0.00	10.50	0.00	0	90
	174.0											
									398.30	342.47		

CJT14_9-12-02 (TRIP 1)

CJT14_9-12-02 (TRIP 1)													
Gage = 9.63' at 19:00													
W = 913'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir	(deg)
	913.0												
0.9397	876.0	37.0	4.00	0.8	20	33.3	1.34	1.66	148.00	231.49	340	430	
0.9397	876.0	0.0		0.2	20	22.4	1.99	0.00	0.00	0.00	340	430	
1	839.5	36.5	1.80	0.6	20	122	0.38	0.38	65.70	24.87	360	450	
0.9397	803.0	36.5	3.60	0.8	20	34.3	1.30	1.52	131.40	187.54	340	430	
0.9397	803.0	0.0		0.2	20	25.7	1.73	0.00	0.00	0.00	340	430	
0.9397	766.5	36.5	3.10	0.8	20	31.6	1.41	1.58	113.15	168.41	340	430	
0.9397	766.5	0.0		0.2	20	25.4	1.75	0.00	0.00	0.00	340	430	
0.9397	730.0	36.5	2.30	0.6	20	46.3	0.97	0.97	83.95	76.56	340	430	
0.9659	693.5	36.5	3.00	0.8	20	29.3	1.52	1.72	109.50	181.60	345	435	
0.9659	693.5	0.0		0.2	20	23.3	1.91	0.00	0.00	0.00	345	435	
0.9659	657.0	36.5	2.20	0.6	20	32.3	1.38	1.38	80.30	107.30	345	435	
0.9659	620.5	36.5	2.20	0.6	20	28.3	1.58	1.58	80.30	122.26	345	435	
0.9397	584.0	36.5	1.90	0.6	20	24.1	1.85	1.85	69.35	120.42	340	430	
0.9397	547.5	36.5	2.00	0.6	20	24.2	1.84	1.84	73.00	126.24	340	430	
0.9397	511.0	36.5	2.10	0.6	20	22.3	2.00	2.00	76.65	143.74	340	430	
0.9397	474.5	36.5	2.40	0.6	20	24.1	1.85	1.85	87.60	152.11	340	430	
0.9397	438.0	36.5	2.20	0.6	20	20.3	2.19	2.19	80.30	165.28	340	430	
0.9397	401.5	36.5	3.20	0.8	20	25.9	1.72	2.09	116.80	229.87	340	430	
0.9397	401.5	0.0		0.2	20	18	2.47	0.00	0.00	0.00	340	430	
0.9063	365.0	36.5	2.70	0.6	20	22.4	1.99	1.99	98.55	177.45	335	425	
0.9063	328.5	36.5	1.50	0.6	20	20.4	2.18	2.18	54.75	108.16	335	425	
0.766	292.0	36.5	1.90	0.6	20	22.4	1.99	1.99	69.35	105.55	320	410	
0.7071	255.5	36.5	1.60	0.6	20	23	1.94	1.94	58.40	79.92	315	405	
0.7071	219.0	36.5	2.00	0.6	20	30.2	1.48	1.48	73.00	76.31	315	405	
0.9063	182.5	36.5	2.60	0.6	20	23	1.94	1.94	94.90	166.46	335	425	
0.9659	143.0	39.5	1.60	0.6	20	84.3	0.54	0.54	63.20	33.03	345	435	
0.9848	109.5	33.5	2.30	0.6	20	63.8	0.71	0.71	77.05	53.82	350	440	
1	73.0	36.5	1.70	0.6	20	37	1.21	1.21	62.05	75.07	360	450	
1	60.0	13.0	1.00	0.6	20	24.2	1.84	1.84	13.00	23.92	360	450	
1	20.0	40.0	2.30	0.6	20	33.5	1.33	1.33	92.00	122.77	360	450	
	0.0												
2072.25										3060.14			

CJT14_10-9-02 (TRIP 2)

CJT14_10-9-02 (TRIP 2)													
Gage = 11.21' at 16:30													
W = 993'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow	Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)		Flow Dir
	IP												(deg)
	0.00												
0.9848	39.75	39.8	2.20	0.6	30	36.2	1.85	1.85	87.45	158.92	350		440
0.9659	79.50	39.8	2.90	0.6	30	53.6	1.25	1.25	115.28	139.42	345		435
0.9962	119.25	39.8	4.10	0.8	30	62.9	1.07	1.05	162.98	170.91	355		445
0.9962	119.25	0.0	4.10	0.2	30	65.0	1.04	0.00	0.00	0.00	355		445
0.9848	159.00	39.8	2.20	0.6	30	35.6	1.88	1.88	87.45	161.58	350		440
0.9659	198.50	39.5	3.40	0.8	30	41.2	1.62	1.89	134.30	244.88	345		435
0.9659	198.50	0.0	3.40	0.2	30	31.0	2.15	0.00	0.00	0.00	345		435
0.9397	238.50	40.0	3.30	0.8	30	42.0	1.59	1.76	132.00	218.49	340		430
0.9397	238.50	0.0	3.30	0.2	30	34.6	1.93	0.00	0.00	0.00	340		430
0.9397	278.75	40.3	3.70	0.8	30	46.2	1.45	1.72	148.93	240.46	340		430
0.9397	278.75	0.0	3.70	0.2	30	33.6	1.99	0.00	0.00	0.00	340		430
0.9397	318.50	39.8	3.70	0.8	30	47.2	1.42	1.66	147.08	229.57	340		430
0.9397	318.50	0.0	3.70	0.2	30	35.1	1.90	0.00	0.00	0.00	340		430
0.9397	358.25	39.8	3.30	0.8	30	45.7	1.47	1.80	131.18	221.68	340		430
0.9397	358.25	0.0	3.30	0.2	30	31.3	2.13	0.00	0.00	0.00	340		430
0.9397	398.00	39.8	4.80	0.8	30	30.4	2.19	2.40	190.80	429.94	340		430
0.9397	398.00	0.0	4.80	0.2	30	25.6	2.60	0.00	0.00	0.00	340		430
0.9659	437.75	39.8	4.60	0.8	30	26.9	2.48	2.70	182.85	476.56	345		435
0.9659	437.75	0.0	4.60	0.2	30	22.8	2.92	0.00	0.00	0.00	345		435
0.9659	477.50	39.8	5.30	0.8	30	29.6	2.25	2.49	210.68	505.77	345		435
0.9659	477.50	0.0	5.30	0.2	30	24.5	2.72	0.00	0.00	0.00	345		435
0.9659	517.25	39.8	4.90	0.8	30	32.4	2.06	2.44	194.78	459.12	345		435
0.9659	517.25	0.0	4.90	0.2	30	23.6	2.82	0.00	0.00	0.00	345		435
0.9659	557.00	39.8	3.40	0.8	30	28.6	2.33	2.50	135.15	326.72	345		435
0.9659	557.00	0.0	3.40	0.2	30	24.9	2.67	0.00	0.00	0.00	345		435
0.9848	596.75	39.8	3.90	0.8	30	29.8	2.24	2.52	155.03	385.26	350		440
0.9848	596.75	0.0	3.90	0.2	30	23.7	2.81	0.00	0.00	0.00	350		440
0.9848	636.00	39.3	3.80	0.8	30	31.3	2.13	2.42	149.15	355.34	350		440
0.9848	636.00	0.0	3.80	0.2	30	24.6	2.71	0.00	0.00	0.00	350		440
0.9848	675.75	39.8	3.60	0.8	30	34.2	1.95	2.24	143.10	316.06	350		440
0.9848	675.75	0.0	3.60	0.2	30	26.3	2.53	0.00	0.00	0.00	350		440
0.9848	715.50	39.8	3.80	0.8	30	31.8	2.10	2.34	151.05	348.10	350		440
0.9848	715.50	0.0	3.80	0.2	30	25.8	2.58	0.00	0.00	0.00	350		440
0.9962	755.25	39.8	3.30	0.8	30	75.4	0.90	1.04	131.18	136.04	355		445
0.9962	755.25	0.0	3.30	0.2	30	56.6	1.19	0.00	0.00	0.00	355		445
0.9962	795.00	39.8	4.90	0.8	30	43.5	1.54	2.02	194.78	391.39	355		445
0.9962	795.00	0.0	4.90	0.2	30	26.7	2.50	0.00	0.00	0.00	355		445
0.9962	834.75	39.8	5.90	0.8	30	33.3	2.00	2.28	234.53	532.33	355		445
0.9962	834.75	0.0	5.90	0.2	30	26.1	2.55	0.00	0.00	0.00	355		445
0.9962	874.50	39.8	7.10	0.8	30	31.0	2.15	2.39	282.23	671.14	355		445
0.9962	874.50	0.0	7.10	0.2	30	25.4	2.62	0.00	0.00	0.00	355		445
0.9962	914.25	39.8	5.00	0.8	30	109.2	0.62	0.79	198.75	156.55	355		445
0.9962	914.25	0.0	5.00	0.2	30	70.4	0.96	0.00	0.00	0.00	355		445
1	954.00	39.8	0.00		30				0.00	0.00			
1	981.75	27.8	1.40	0.6	30	171.2	0.40	0.40	38.85	15.71	360		450
	993.00												
3739.50										7291.92			

CJT14_11-7-02 (TRIP 3)

CJT14_11-7-02 (TRIP 3)												
Gage = 10.19' at 15:50												
W = 925'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0											
1	37	37	1.30	0.6	20	19.8	2.25	2.25	48.10	108.00	360	450
0.9397	74	37	1.00	0.6	20	24.4	1.83	1.83	37.00	63.47	340	430
0.9397	111	37	1.00	0.6	20	24.1	1.85	1.85	37.00	64.25	340	430
0.9397	148	37	1.40	0.6	20	23.9	1.86	1.86	51.80	90.69	340	430
0.866	185	37	1.80	0.6	20	21.8	2.04	2.04	66.60	117.72	330	420
0.9397	222	37	1.60	0.6	20	19.1	2.33	2.33	59.20	129.44	340	430
0.9397	259	37	1.10	0.6	30	49.1	1.37	1.37	40.70	52.21	340	430
0.9962	296	37	1.60	0.6	30	32.6	2.05	2.05	59.20	120.73	355	445
1	333	37	2.00	0.6	30	31.2	2.14	2.14	74.00	158.23	360	450
0.9962	370	37	2.70	0.6	30	34.4	1.94	1.94	99.90	193.16	355	445
0.9962	407	37	4.70	0.8	30	35.7	1.87	2.17	173.90	376.62	355	445
0.9962	407	0		0.2	30	26.9	2.48	0	0.00	0.00	355	445
0.9962	444	37	2.90	0.6	30	27.2	2.45	2.45	107.30	261.88	355	445
0.9848	481	37	3.60	0.8	30	37.6	1.78	2.08	133.20	272.70	350	440
0.9848	481	0		0.2	30	28.0	2.38	0	0.00	0.00	350	440
0.9659	518	37	3.40	0.8	30	41.7	1.60	1.99	125.80	241.59	345	435
0.9659	518	0		0.2	30	28.1	2.37	0	0.00	0.00	345	435
0.9659	555	37	2.60	0.6	30	42.9	1.56	1.56	96.20	144.95	345	435
0.9659	592	37	3.60	0.8	30	37.1	1.80	2.25	133.20	289.30	345	435
0.9659	592	0		0.2	30	24.7	2.70	0	0.00	0.00	345	435
0.9848	629	37	3.60	0.8	30	33.1	2.02	2.22	133.20	291.21	350	440
0.9848	629	0		0.2	30	27.5	2.42	0	0.00	0.00	350	440
0.9962	666	37	2.80	0.6	30	27.9	2.39	2.39	103.60	246.56	355	445
0.9962	703	37	3.10	0.8	30	39.1	1.71	2.08	114.70	237.15	355	445
0.9962	703	0		0.2	30	27.3	2.44	0	0.00	0.00	355	445
0.9848	740	37	2.00	0.6	30	56.6	1.19	1.19	74.00	86.48	350	440
0.9962	777	37	2.50	0.6	30	73.5	0.92	0.92	92.50	84.59	355	445
0.9962	814	37	3.70	0.8	30	55.9	1.20	1.29	136.90	175.96	355	445
0.9962	814	0		0.2	30	48.6	1.38	0	0.00	0.00	355	445
1	851	37	3.20	0.8	3	72.8	0.11	0.14	118.40	16.33	360	450
1	851	0		0.2	6	88.8	0.17	0	0.00	0.00	360	450
0.9848	888	37	4.20	0.8	30	72.4	0.93	1.66	155.40	253.45	350	440
0.9848	888	0		0.2	30	28.0	2.38	0	0.00	0.00	350	440
	925											
										2271.80	4076.68	

CJT14_12-18-02 (TRIP 4)

CJT14_12-18-02 (TRIP 4)													
Gage = 9.89' at 16:00													
W = 920'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir	(deg)
	IP												
	0												
1	26	26	1.90	0.6	20	28.9	1.54	1.54	49.40	76.27	360	450	
1	37	11	0.00		0		0.00	0.00	0.00	0.00	360	450	
1	58	21	1.50	0.6	20	28.9	1.54	1.54	31.50	48.63	360	450	
0.9397	74	16	1.60	0.6	20	32.2	1.39	1.39	25.60	33.38	340	430	
0.9848	111	37	1.00	0.6	20	29.3	1.52	1.52	37.00	55.50	350	440	
0.9848	148	37	1.90	0.6	30	31.8	2.10	2.10	70.30	145.26	350	440	
0.9848	185	37	1.80	0.6	30	34.3	1.95	1.95	66.60	127.67	350	440	
0.9848	222	37	2.40	0.6	30	34.2	1.95	1.95	88.80	170.72	350	440	
0.9962	259	37	0.90	0.6	30	51.1	1.31	1.31	33.30	43.54	355	445	
0.9962	296	37	1.60	0.6	30	32.4	2.06	2.06	59.20	121.47	355	445	
0.9848	333	37	0.90	0.6	30	48.2	1.39	1.39	33.30	45.60	350	440	
0.9848	370	37	2.20	0.6	30	39.9	1.68	1.68	81.40	134.35	350	440	
0.9848	407	37	4.60	0.8	30	45.7	1.47	1.63	170.20	273.35	350	440	
0.9848	407	0	4.60	0.2	30	37.2	1.80	0.00	0.00	0.00	350	440	
0.9848	444	37	2.70	0.6	30	40.2	1.66	1.66	99.90	163.66	350	440	
0.9848	481	37	3.70	0.8	30	43.6	1.54	1.89	136.90	254.34	350	440	
0.9848	481	0	3.70	0.2	30	29.8	2.24	0.00	0.00	0.00	350	440	
0.9848	518	37	4.00	0.8	30	30.1	2.22	2.43	148.00	354.84	350	440	
0.9848	518	0	4.00	0.2	30	25.1	2.65	0.00	0.00	0.00	350	440	
0.9848	555	37	3.40	0.8	30	39.4	1.70	1.79	125.80	221.33	350	440	
0.9848	555	0	3.40	0.2	30	35.6	1.88	0.00	0.00	0.00	350	440	
0.9848	592	37	4.10	0.8	30	30.6	2.18	2.43	151.70	362.61	350	440	
0.9848	592	0	4.10	0.2	30	24.9	2.67	0.00	0.00	0.00	350	440	
0.9848	629	37	3.70	0.8	30	32.3	2.07	2.17	136.90	292.67	350	440	
0.9848	629	0	3.70	0.2	30	29.3	2.28	0.00	0.00	0.00	350	440	
0.9848	666	37	2.90	0.6	30	33.7	1.98	1.98	107.30	209.32	350	440	
0.9848	703	37	2.40	0.6	30	37.1	1.80	1.80	88.80	157.50	350	440	
0.9848	740	37	1.00	0.6	30	50.4	1.33	1.33	37.00	48.48	350	440	
0.9848	777	37	2.00	0.6	30	55.0	1.22	1.22	74.00	88.96	350	440	
0.9848	814	37	1.40	0.6	20	36.2	1.24	1.24	51.80	63.06	350	440	
0.9848	851	37	2.90	0.6	5	38.6	0.30	0.30	107.30	32.08	350	440	
0.9848	888	37	2.90	0.6	20	20.5	2.17	2.17	107.30	229.22	350	440	
	920												
2119.30										3753.83			

EDYI4_9-12-02 (TRIP 1)

EDYI4_9-12-02 (TRIP 1)												
Gage = 48.17' at 13:15												
W = 460'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir (deg)
	0											
1	15.0	15.0	2.7	0.6	2	57.0	0.10	0.10	40.50	3.86	360	-270
1	34.5	19.5	3.0	0.6	13	49.0	0.60	0.60	58.50	35.28	360	-270
1	34.5	0.0	3.0	0.6	10	29.0	0.78	0.78	0.00	0.00	360	-270
1	53.0	18.5	3.4	0.8	20	38.0	1.18	1.36	62.90	85.62	360	-270
1	53.0	0.0	3.4	0.2	20	28.9	1.54	0.00	0.00	0.00	360	-270
1	71.5	18.5	2.6	0.6	20	35.7	1.25	1.25	48.10	60.28	360	-270
1	90.0	18.5	1.9	0.6	20	35.4	1.26	1.26	35.15	44.42	360	-270
1	108.5	18.5	1.8	0.6	20	31.8	1.40	1.40	33.30	46.78	360	-270
1	127.0	18.5	2.2	0.6	20	31.6	1.41	1.41	40.70	57.53	360	-270
1	145.5	18.5	2.7	0.6	20	30.6	1.46	1.46	49.95	72.89	360	-270
1	160.0	14.5	3.1	0.8	20	56.2	0.80	0.65	44.95	29.36	360	-270
1	160.0	0.0	3.1	0.2	12	54.5	0.50	0.00	0.00	0.00	360	-270
1	182.5	22.5	0.6	0.6	0	0.0	0.00	0.00	13.50	0.00	360	-270
1	201.0	18.5	1.7	0.6	20	41.2	1.09	1.09	31.45	34.23	360	-270
1	219.5	18.5	1.8	0.6	20	45.4	0.99	0.99	33.30	32.95	360	-270
1	238.0	18.5	1.9	0.6	20	42.9	1.05	1.05	35.15	36.77	360	-270
1	256.5	18.5	2.0	0.6	20	41.4	1.08	1.08	37.00	40.08	360	-270
1	275.0	18.5	1.8	0.6	20	42.0	1.07	1.07	33.30	35.56	360	-270
1	293.5	18.5	2.2	0.6	20	39.9	1.12	1.12	40.70	45.72	360	-270
1	305.0	11.5	2.5	0.6	20	36.8	1.22	1.22	28.75	34.97	360	-270
1	330.5	25.5	1.8	0.6	20	62.1	0.73	0.73	45.90	33.42	360	-270
1	349.0	18.5	2.7	0.6	20	33.6	1.33	1.33	49.95	66.46	360	-270
1	367.5	18.5	2.9	0.6	20	32.7	1.37	1.37	53.65	73.32	360	-270
1	386.0	18.5	2.8	0.6	20	28.4	1.57	1.57	51.80	81.37	360	-270
1	404.5	18.5	3.6	0.8	20	36.3	1.23	1.36	66.60	90.77	360	-270
1	404.5	0.0	3.6	0.2	20	29.9	1.49	0.00	0.00	0.00	360	-270
1	423.0	18.5	4.5	0.8	10	38.4	0.59	0.54	83.25	44.72	360	-270
1	423.0	0.0	4.5	0.2	12	57.0	0.48	0.00	0.00	0.00	360	-270
1	441.5	18.5	2.5	0.6	0	0.0	0.00	0.00	46.25	0.00	360	-270
	460.0											
									1064.60	1086.35		

EDYI4_10-14-02 (TRIP 2)

EDYI4_10-14-02 (TRIP 2)													
Gage = 51.39' at 11:20													
W = 532'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir	(deg)
	0.0												
1	21.3	21.3	3.1	0.8	20	48.0	0.94	0.95	66.03	63.04	360	-270	
1	21.3	0.0	3.1	0.2	20	46.2	0.97	0.00	0.00	0.00	360	-270	
1	42.6	21.3	6.0	0.8	20	104.2	0.44	0.63	127.80	79.91	360	-270	
1	42.6	0.0	6.0	0.2	15	41.8	0.81	0.00	0.00	0.00	360	-270	
1	63.9	21.3	6.5	0.8	20	27.3	1.63	1.96	138.45	271.68	360	-270	
1	63.9	0.0	6.5	0.2	20	19.4	2.29	0.00	0.00	0.00	360	-270	
1	85.2	21.3	6.3	0.8	20	17.6	2.52	3.02	134.19	405.37	360	-270	
1	85.2	0.0	6.3	0.2	20	12.6	3.52	0.00	0.00	0.00	360	-270	
1	106.5	21.3	5.7	0.8	30	26.9	2.48	2.85	121.41	345.46	360	-270	
1	106.5	0.0	5.7	0.2	30	20.7	3.21	0.00	0.00	0.00	360	-270	
1	127.8	21.3	5.6	0.8	30	31.5	2.12	2.65	119.28	316.16	360	-270	
1	127.8	0.0	5.6	0.2	30	20.9	3.18	0.00	0.00	0.00	360	-270	
1	149.1	21.3	5.2	0.8	30	29.0	2.30	2.70	110.76	298.71	360	-270	
1	149.1	0.0	5.2	0.2	30	21.5	3.09	0.00	0.00	0.00	360	-270	
1	170.4	21.3	6.2	0.8	30	32.2	2.07	2.50	132.06	330.44	360	-270	
1	170.4	0.0	6.2	0.2	30	22.7	2.93	0.00	0.00	0.00	360	-270	
1	191.7	21.3	5.6	0.8	30	34.4	1.94	1.97	119.28	234.60	360	-270	
1	191.7	0.0	5.6	0.2	30	33.5	1.99	0.00	0.00	0.00	360	-270	
1	213.0	21.3	3.8	0.8	30	27.2	2.45	2.40	80.94	194.48	360	-270	
1	213.0	0.0	3.8	0.2	30	28.3	2.36	0.00	0.00	0.00	360	-270	
1	234.3	21.3	4.9	0.8	30	29.9	2.23	2.54	104.37	264.85	360	-270	
1	234.3	0.0	4.9	0.2	30	23.4	2.84	0.00	0.00	0.00	360	-270	
1	255.6	21.3	5.2	0.8	30	30.8	2.17	2.48	110.76	274.86	360	-270	
1	255.6	0.0	5.2	0.2	30	23.8	2.80	0.00	0.00	0.00	360	-270	
1	276.9	21.3	5.0	0.8	30	33.0	2.02	2.38	106.50	253.02	360	-270	
1	276.9	0.0	5.0	0.2	30	24.4	2.73	0.00	0.00	0.00	360	-270	
1	298.2	21.3	5.1	0.8	30	31.7	2.10	2.41	108.63	261.35	360	-270	
1	298.2	0.0	5.1	0.2	30	24.6	2.71	0.00	0.00	0.00	360	-270	
1	319.5	21.3	5.7	0.8	30	30.2	2.21	2.44	121.41	296.42	360	-270	
1	319.5	0.0	5.7	0.2	30	24.9	2.67	0.00	0.00	0.00	360	-270	
1	340.8	21.3	4.0	0.8	30	49.3	1.36	1.64	85.20	140.14	360	-270	
1	340.8	0.0	4.0	0.2	30	34.6	1.93	0.00	0.00	0.00	360	-270	
1	362.1	21.3	5.5	0.8	30	31.3	2.13	2.52	117.15	295.10	360	-270	
1	362.1	0.0	5.5	0.2	30	22.9	2.91	0.00	0.00	0.00	360	-270	
1	383.4	21.3	6.3	0.8	30	30.9	2.16	2.47	134.19	330.98	360	-270	
1	383.4	0.0	6.3	0.2	30	24.0	2.77	0.00	0.00	0.00	360	-270	
1	404.7	21.3	6.6	0.8	30	31.2	2.14	2.49	140.58	350.26	360	-270	
1	404.7	0.0	6.6	0.2	30	23.4	2.84	0.00	0.00	0.00	360	-270	
1	426.0	21.3	6.4	0.8	30	31.2	2.14	2.60	136.32	353.79	360	-270	
1	426.0	0.0	6.4	0.2	30	21.8	3.05	0.00	0.00	0.00	360	-270	
1	447.3	21.3	6.9	0.8	30	36.4	1.84	2.42	146.97	355.16	360	-270	
1	447.3	0.0	6.9	0.2	30	22.2	3.00	0.00	0.00	0.00	360	-270	
1	468.6	21.3	5.7	0.8	5	74.5	0.17	0.37	121.41	45.43	360	-270	
1	468.6	0.0	5.7	0.2	15	58.6	0.58	0.00	0.00	0.00	360	-270	
1	489.9	21.3	2.7	0.6	5	72.9	0.17	0.17	57.51	9.73	360	-270	
0.9659	510.2	20.3	3.8	0.8	3	83.5	0.09	0.15	77.14	11.34	345	-255	
1	510.2	0.0	3.8	0.2	5	60.5	0.20	0.00	0.00	0.00	360	-270	
	532.0												
2718.34										5782.28			

EDYI4_11-7-02 (TRIP 3)

EDYI4_11-7-02 (TRIP 3)													
Gage = 49.87' at 11:00													
W = 515'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow	Dir	Corr
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)		Flow Dir (deg)
	0.0												
0.9962	20.5	20.5	4.0	0.8	15	45.0	0.75	0.58	82.00	47.69	5	85	
0.9962	20.5	0.0	4.0	0.2	10	55.6	0.41	0.00	0.00	0.00	5	85	
1	41.0	20.5	4.6	0.8	5	35.0	0.33	0.39	94.30	36.49	360	-270	
1	41.0	0.0	4.6	0.2	7	36.5	0.44	0.00	0.00	0.00	360	-270	
1	61.5	20.5	5.3	0.8	10	8.8	2.52	2.86	108.65	310.43	360	-270	
1	61.5	0.0	5.3	0.2	20	13.9	3.19	0.00	0.00	0.00	360	-270	
1	82.0	20.5	4.4	0.8	30	26.4	2.52	2.73	90.20	246.06	360	-270	
1	82.0	0.0	4.4	0.2	30	22.7	2.93	0.00	0.00	0.00	360	-270	
0.9848	102.5	20.5	3.5	0.8	30	25.8	2.54	2.66	71.75	190.88	10	80	
0.9848	102.5	0.0	3.5	0.2	30	23.6	2.78	0.00	0.00	0.00	10	80	
0.9962	123.0	20.5	3.5	0.8	30	32.4	2.05	2.32	71.75	166.24	5	85	
0.9962	123.0	0.0	3.5	0.2	30	25.7	2.58	0.00	0.00	0.00	5	85	
1	143.5	20.5	3.7	0.8	30	35.0	1.91	2.24	75.85	170.28	360	-270	
1	143.5	0.0	3.7	0.2	20	17.2	2.58	0.00	0.00	0.00	360	-270	
1	164.0	20.5	5.2	0.8	20	21.6	2.06	2.14	106.60	228.27	360	-270	
1	164.0	0.0	5.2	0.2	20	20.0	2.22	0.00	0.00	0.00	360	-270	
1	184.5	20.5	2.5	0.6	20	52.1	0.86	0.86	51.25	44.30	360	-270	
1	205.0	20.5	2.5	0.6	20	18.9	2.35	2.35	51.25	120.51	360	-270	
1	225.5	20.5	3.2	0.8	20	24.4	1.83	2.05	65.60	134.26	360	-270	
1	225.5	0.0	3.2	0.2	20	19.6	2.27	0.00	0.00	0.00	360	-270	
1	246.0	20.5	2.9	0.6	20	20.5	2.17	2.17	59.45	128.96	360	-270	
0.9848	266.5	20.5	2.8	0.6	20	22.2	1.97	1.97	57.40	113.31	10	80	
1	287.0	20.5	3.0	0.8	20	24.4	1.83	2.09	61.50	128.43	360	-270	
1	287.0	0.0	3.0	0.2	20	18.9	2.35	0.00	0.00	0.00	360	-270	
1	307.5	20.5	3.5	0.8	20	24.4	1.83	2.05	71.75	147.26	360	-270	
1	307.5	0.0	3.5	0.2	20	19.5	2.28	0.00	0.00	0.00	360	-270	
1	330.0	22.5	1.9	0.6	20	42.7	1.05	1.05	42.75	44.92	360	-270	
1	348.5	18.5	4.3	0.8	20	28.0	1.59	1.95	79.55	154.96	360	-270	
1	348.5	0.0	4.3	0.2	20	19.3	2.30	0.00	0.00	0.00	360	-270	
1	369.0	20.5	4.8	0.8	20	23.2	1.92	2.11	98.40	207.13	360	-270	
1	369.0	0.0	4.8	0.2	20	19.4	2.29	0.00	0.00	0.00	360	-270	
1	389.5	20.5	4.7	0.8	20	21.6	2.06	2.22	96.35	213.70	360	-270	
1	389.5	0.0	4.7	0.2	20	18.7	2.38	0.00	0.00	0.00	360	-270	
1	410.0	20.5	5.2	0.8	20	21.0	2.12	2.27	106.60	241.59	360	-270	
1	410.0	0.0	5.2	0.2	20	18.4	2.41	0.00	0.00	0.00	360	-270	
1	430.5	20.5	5.7	0.8	20	26.0	1.71	2.13	116.85	249.28	360	-270	
1	430.5	0.0	5.7	0.2	20	17.4	2.55	0.00	0.00	0.00	360	-270	
1	451.0	20.5	4.1	0.8	6	54.0	0.26	0.31	84.05	25.78	360	-270	
1	451.0	0.0	4.1	0.2	6	39.8	0.35	0.00	0.00	0.00	360	-270	
1	467.5	16.5	3.5	0.8	9	86.0	0.25	0.32	57.75	18.31	360	-270	
1	467.5	0.0	3.5	0.2	6	36.0	0.39	0.00	0.00	0.00	360	-270	
1	492.0	24.5	0.0	0	0	0.0	0.00	0.00	0.00	0.00	360	-270	
	515.0												
										1801.60	3369.06		

EDYI4_12-5-02 (TRIP 4)

EDYI4_12-5-02 (TRIP 4)													
Gage = 49.78' at 11:00													
W = 480'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir	(deg)
	0.0												
1	19.2	19.2	3.4	0.2	10	43.8	0.52	0.58	65.28	37.67	360	-270	
0.9962	19.2	0.0	3.4	0.8	15	53.6	0.63	0.00	0.00	0.00	5	85	
1	38.4	19.2	4.5	0.8	5	65.0	0.19	0.54	86.40	46.83	360	-270	
1	38.4	0.0	4.5	0.2	20	50.2	0.90	0.00	0.00	0.00	360	-270	
0.9962	57.6	19.2	4.8	0.8	20	21.1	2.10	2.17	92.16	199.89	5	85	
1	57.6	0.0	4.8	0.2	30	29.8	2.24	0.00	0.00	0.00	360	-270	
0.9962	76.8	19.2	4.4	0.8	30	26.6	2.50	2.75	84.48	232.03	5	85	
1	76.8	0.0	4.4	0.2	30	22.2	3.00	0.00	0.00	0.00	360	-270	
0.9962	96.0	19.2	3.6	0.8	30	27.8	2.39	2.69	69.12	186.14	5	85	
1	96.0	0.0	3.6	0.2	30	22.2	3.00	0.00	0.00	0.00	360	-270	
1	115.2	19.2	3.2	0.8	30	29.2	2.28	2.61	61.44	160.22	360	-270	
1	115.2	0.0	3.2	0.2	30	22.7	2.93	0.00	0.00	0.00	360	-270	
0.9962	134.4	19.2	3.7	0.8	30	31.7	2.10	2.32	71.04	165.14	5	85	
1	134.4	0.0	3.7	0.2	30	26.1	2.55	0.00	0.00	0.00	360	-270	
0.9962	153.6	19.2	4.0	0.8	30	34.5	1.93	2.14	76.80	164.17	5	85	
1	153.6	0.0	4.0	0.2	30	28.4	2.35	0.00	0.00	0.00	360	-270	
1	172.8	19.2	3.5	0.8	30	46.8	1.43	1.45	67.20	97.66	360	-270	
1	172.8	0.0	3.5	0.2	30	45.4	1.48	0.00	0.00	0.00	360	-270	
0.9962	192.0	19.2	1.0	0.6	20	44.8	1.00	1.00	19.20	19.17	5	85	
0.9962	211.2	19.2	2.4	0.6	30	27.5	2.41	2.41	46.08	111.25	5	85	
0.9962	230.4	19.2	2.5	0.6	30	30.8	2.16	2.16	48.00	103.56	5	85	
0.9962	249.6	19.2	2.4	0.6	30	31.4	2.12	2.12	46.08	97.53	5	85	
0.9962	268.8	19.2	2.5	0.6	30	22.6	2.93	2.93	48.00	140.82	5	85	
0.9962	288.0	19.2	2.4	0.6	30	30.8	2.16	2.16	46.08	99.42	5	85	
0.9962	307.2	19.2	2.3	0.6	30	33.0	2.01	2.01	44.16	88.98	5	85	
0.9962	320.4	13.2	4.0	0.8	30	45.8	1.46	1.84	52.80	97.15	5	85	
1	320.4	0.0	4.0	0.2	30	30.0	2.22	0.00	0.00	0.00	360	-270	
0.9962	345.6	25.2	3.6	0.8	30	39.4	1.69	1.82	90.72	164.98	5	85	
1	345.6	0.0	3.6	0.2	30	34.3	1.95	0.00	0.00	0.00	360	-270	
0.9962	364.8	19.2	5.0	0.8	30	37.7	1.77	2.08	96.00	199.43	5	85	
1	364.8	0.0	5.0	0.2	30	27.9	2.39	0.00	0.00	0.00	360	-270	
1	384.0	19.2	4.8	0.8	30	31.6	2.11	2.37	92.16	218.13	360	-270	
1	384.0	0.0	4.8	0.2	30	25.4	2.62	0.00	0.00	0.00	360	-270	
0.9986	403.2	19.2	4.9	0.8	30	35.9	1.86	2.25	94.08	211.24	3	87	
1	403.2	0.0	4.9	0.2	30	25.3	2.63	0.00	0.00	0.00	360	-270	
1	422.4	19.2	5.6	0.8	30	29.1	2.29	2.57	107.52	276.77	360	-270	
1	422.4	0.0	5.6	0.2	30	23.3	2.86	0.00	0.00	0.00	360	-270	
0.9962	441.6	19.2	4.6	0.8	30	58.4	1.15	1.39	88.32	122.84	355	-265	
1	441.6	0.0	4.6	0.2	30	40.9	1.64	0.00	0.00	0.00	360	-270	
0.9659	460.8	19.2	3.4	0.8	10	70.6	0.32	0.31	65.28	20.55	345	-255	
1	460.8	0.0	3.4	0.2	10	75.4	0.31	0.00	0.00	0.00	360	-270	
	480.0												
1658.40										3261.56			

EMT14_9-5-02 (TRIP 1)

EMT14_9-5-02 (TRIP 1)												
Gage = 1.53' at 15:30												
W = 113'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	4.4	4.4	0.95	0.6	25	33.0	0.76	0.76	4.18	3.17	360	-270
1.000	8.8	4.4	1.08	0.6	25	35.0	0.72	0.72	4.75	3.41	360	-270
1.000	13.2	4.4	1.22	0.6	30	31.0	0.96	0.96	5.37	5.15	360	-270
1.000	17.6	4.4	1.42	0.6	35	31.0	1.11	1.11	6.25	6.97	360	-270
1.000	22.0	4.4	1.53	0.6	25	23.0	1.07	1.07	6.73	7.23	360	-270
1.000	26.4	4.4	1.64	0.6	25	20.0	1.23	1.23	7.22	8.88	360	-270
1.000	30.8	4.4	1.46	0.6	35	27.0	1.28	1.28	6.42	8.19	360	-270
1.000	35.2	4.4	1.42	0.6	30	23.0	1.28	1.28	6.25	8.02	360	-270
1.000	39.6	4.4	1.33	0.6	45	34.0	1.30	1.30	5.85	7.62	360	-270
1.000	44.0	4.4	1.28	0.6	30	22.0	1.34	1.34	5.63	7.55	360	-270
0.766	48.6	4.6	1.33	0.6	40	27.0	1.45	1.45	6.12	6.81	320	-230
1.000	53.2	4.6	1.43	0.6	35	25.0	1.38	1.38	6.58	9.04	360	-270
1.000	57.8	4.6	1.55	0.6	35	26.0	1.32	1.32	7.13	9.44	360	-270
1.000	62.4	4.6	1.48	0.6	25	21.0	1.17	1.17	6.81	7.99	360	-270
1.000	67.0	4.6	1.58	0.6	25	24.0	1.03	1.03	7.27	7.49	360	-270
1.000	71.6	4.6	1.80	0.6	25	21.0	1.17	1.17	8.28	9.72	360	-270
1.000	76.2	4.6	2.10	0.6	30	29.0	1.02	1.02	9.66	9.89	360	-270
1.000	80.8	4.6	2.05	0.6	35	32.0	1.08	1.08	9.43	10.19	360	-270
1.000	85.4	4.6	2.00	0.6	25	24.0	1.03	1.03	9.20	9.49	360	-270
1.000	90.0	4.6	2.35	0.6	30	29.0	1.02	1.02	10.81	11.07	360	-270
1.000	94.6	4.6	2.65	0.6	25	32.0	0.78	0.78	12.19	9.52	360	-270
1.000	99.2	4.6	2.92	0.6	20	35.0	0.58	0.58	13.43	7.78	360	-270
1.000	103.8	4.6	3.40	0.8	13	36.0	0.38	0.40	15.64	6.24	360	-270
1.000	103.8	0.0	3.4	0.2	15	37.0	0.42	0.00	0.00	0.00	360	-270
1.000	108.4	4.6	2.4	0.6	1	82.0	0.04	0.04	11.04	0.47	360	-270
	113.0											
										192.24	181.34	

EMT14_9-26-02 (TRIP 2)

EMT14_9-26-02 (TRIP 2)												
Gage = 0.84' at 13:15												
W = 34'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	1.4	1.4	0.42	0.6	20	26.0	0.77	0.77	0.59	0.45	360	-270
1.000	2.8	1.4	0.57	0.6	20	14.6	1.35	1.35	0.80	1.07	360	-270
1.000	4.2	1.4	0.88	0.6	50	32.5	1.51	1.51	1.23	1.86	360	-270
1.000	5.6	1.4	1.06	0.6	50	26.5	1.84	1.84	1.48	2.73	360	-270
1.000	7.0	1.4	1.13	0.6	50	24.5	1.99	1.99	1.58	3.15	360	-270
1.000	8.4	1.4	1.20	0.6	50	25.9	1.88	1.88	1.68	3.17	360	-270
1.000	9.8	1.4	1.38	0.6	50	22.3	2.18	2.18	1.93	4.22	360	-270
1.000	11.2	1.4	1.40	0.6	50	22.3	2.18	2.18	1.96	4.28	360	-270
1.000	12.6	1.4	1.53	0.6	50	22.9	2.13	2.13	2.14	4.56	360	-270
1.000	14.0	1.4	1.65	0.6	50	24.1	2.02	2.02	2.31	4.67	360	-270
1.000	15.4	1.4	1.78	0.6	50	25.4	1.92	1.92	2.49	4.79	360	-270
1.000	16.8	1.4	1.73	0.6	50	25.5	1.91	1.91	2.42	4.63	360	-270
1.000	18.2	1.4	1.72	0.6	50	28.1	1.74	1.74	2.41	4.19	360	-270
1.000	19.6	1.4	1.60	0.6	50	32.0	1.53	1.53	2.24	3.43	360	-270
1.000	21.0	1.4	1.45	0.6	50	33.9	1.45	1.45	2.03	2.94	360	-270
1.000	22.4	1.4	1.30	0.6	50	42.3	1.17	1.17	1.82	2.12	360	-270
1.000	23.8	1.4	1.11	0.6	30	34.1	0.88	0.88	1.55	1.36	360	-270
1.000	25.2	1.4	0.98	0.6	30	45.8	0.66	0.66	1.37	0.91	360	-270
1.000	26.6	1.4	0.83	0.6	10	36.8	0.29	0.29	1.16	0.34	360	-270
1.000	28.0	1.4	0.63	0.6	5	39.8	0.15	0.15	0.88	0.13	360	-270
1.000	29.4	1.4	0.53	0	0	0.0	0.00	0.00	0.74	0.00	360	-270
1.000	30.8	1.4	0.00	0	0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	32.2	1.4	0.00	0	0	0.0	0.00	0.00	0.00	0.00	360	-270
	34.0											
										34.83	54.99	

EMT14_10-30-02 (TRIP 3)

EMT14_10-30-02 (TRIP 3)													
Gage = 1.82' at 10:30													
W = 116'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir	(deg)
	IP												
	0.0												
1.000	4.6	4.6	0.95	0.6	20	37.6	0.54	0.54	4.37	2.37	360	-270	
1.000	9.2	4.6	1.34	0.6	30	38.9	0.77	0.77	6.16	4.75	360	-270	
1.000	13.8	4.6	1.55	0.6	30	29.1	1.02	1.02	7.13	7.28	360	-270	
1.000	18.4	4.6	1.75	0.6	30	28.9	1.03	1.03	8.05	8.27	360	-270	
1.000	23.0	4.6	1.92	0.6	30	24.8	1.19	1.19	8.83	10.53	360	-270	
1.000	27.6	4.6	1.84	0.6	30	23.8	1.24	1.24	8.46	10.50	360	-270	
1.000	32.2	4.6	1.90	0.6	30	23.4	1.26	1.26	8.74	11.03	360	-270	
1.000	36.8	4.6	1.70	0.6	30	19.4	1.52	1.52	7.82	11.85	360	-270	
1.000	41.4	4.6	1.66	0.6	30	20.1	1.46	1.46	7.64	11.18	360	-270	
1.000	46.0	4.6	1.48	0.6	30	21.1	1.40	1.40	6.81	9.50	360	-270	
1.000	50.6	4.6	1.44	0.6	30	21.0	1.40	1.40	6.62	9.29	360	-270	
1.000	55.2	4.6	1.55	0.6	30	20.4	1.44	1.44	7.13	10.29	360	-270	
1.000	59.8	4.6	1.58	0.6	30	23.1	1.28	1.28	7.27	9.29	360	-270	
1.000	64.4	4.6	1.50	0.6	30	21.7	1.36	1.36	6.90	9.37	360	-270	
1.000	69.0	4.6	1.52	0.6	30	22.4	1.32	1.32	6.99	9.21	360	-270	
1.000	73.6	4.6	1.68	0.6	30	23.3	1.27	1.27	7.73	9.79	360	-270	
1.000	78.2	4.6	1.89	0.6	30	23.5	1.26	1.26	8.69	10.92	360	-270	
1.000	82.8	4.6	1.93	0.6	30	25.0	1.18	1.18	8.88	10.50	360	-270	
1.000	87.4	4.6	1.99	0.6	30	24.9	1.19	1.19	9.15	10.87	360	-270	
1.000	92.0	4.6	2.35	0.6	30	29.8	1.00	1.00	10.81	10.78	360	-270	
1.000	96.6	4.6	2.35	0.6	30	30.2	0.98	0.98	10.81	10.64	360	-270	
1.000	101.2	4.6	2.43	0.6	20	41.2	0.50	0.50	11.18	5.56	360	-270	
1.000	105.8	4.6	2.78	0.6	20	43.6	0.47	0.47	12.79	6.03	360	-270	
1.000	110.4	4.6	2.35	0.6	10	48.8	0.23	0.23	10.81	2.46	360	-270	
	116.0												
										199.78	212.27		

EMTI4_4-17-03 (TRIP 4)

EMTI4_4-17-03 (TRIP 4)											
Gage = 2.10' at 16:00											
W = 132'											
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)
	IP										Flow Dir
											(deg)
	0.0										
1.000	5.3	5.3	1.53	0.6	50	40.5	1.22	1.22	8.11	9.86	
1.000	10.6	5.3	2.00	0.6	56	40.1	1.37	1.37	10.60	14.54	
1.000	15.9	5.3	2.28	0.6	68	40.4	1.65	1.65	12.08	19.90	
1.000	21.2	5.3	2.60	0.6	84	40.1	2.04	2.04	13.78	28.14	
1.000	26.5	5.3	2.42	0.6	88	40.3	2.13	2.13	12.83	27.28	
1.000	31.8	5.3	2.42	0.6	94	40.2	2.28	2.28	12.83	29.19	
1.000	37.1	5.3	2.17	0.6	97	40.1	2.35	2.35	11.50	27.06	
1.000	42.4	5.3	1.70	0.6	96	40.3	2.32	2.32	9.01	20.88	
0.990	47.7	5.3	1.50	0.6	91	40.4	2.19	2.19	7.95	17.26	
0.980	53.0	5.3	1.50	0.6	85	40.4	2.05	2.05	7.95	15.98	
0.980	58.3	5.3	1.22	0.6	86	40.0	2.10	2.10	6.47	13.28	
0.960	63.6	5.3	1.15	0.6	79	40.3	1.91	1.91	6.10	11.19	
0.960	68.9	5.3	1.06	0.6	81	40.0	1.98	1.98	5.62	10.65	
0.940	74.2	5.3	1.00	0.6	74	40.0	1.81	1.81	5.30	9.00	
0.940	79.5	5.3	1.30	0.6	56	40.6	1.36	1.36	6.89	8.78	
0.960	84.8	5.3	1.32	0.6	62	40.5	1.50	1.50	7.00	10.08	
0.980	90.1	5.3	1.18	0.6	61	40.4	1.48	1.48	6.25	9.07	
1.000	95.4	5.3	1.06	0.6	69	40.4	1.67	1.67	5.62	9.39	
1.000	100.7	5.3	1.05	0.6	66	40.1	1.61	1.61	5.57	8.97	
1.000	106.0	5.3	1.30	0.6	65	40.2	1.58	1.58	6.89	10.91	
1.000	111.3	5.3	1.34	0.6	56	40.0	1.38	1.38	7.10	9.77	
1.000	116.6	5.3	1.23	0.6	55	40.4	1.34	1.34	6.52	8.72	
1.000	121.9	5.3	1.11	0.6	50	40.3	1.22	1.22	5.88	7.19	
1.000	127.2	5.3	1.10	0.6	48	40.4	1.17	1.17	5.83	6.83	
	132.0								193.66	343.92	
Correction factors were determined using a USGS data sheet.											

ESVI4_9-5-02 (TRIP 1)

ESVI4_9-5-02 (TRIP 1)										
Gage = 2.15' at 18:00										
W = 40.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	1.6	1.6	0.38	0.6	30	25	1.18	1.18	0.61	0.72
1	3.2	1.6	0.65	0.6	40	26	1.51	1.51	1.04	1.57
1	4.8	1.6	0.85	0.6	30	22	1.34	1.34	1.36	1.82
1	6.4	1.6	1.00	0.6	35	17	2.01	2.01	1.60	3.21
1	8.0	1.6	1.10	0.6	45	24	1.83	1.83	1.76	3.22
1	9.6	1.6	1.10	0.6	30	13	2.25	2.25	1.76	3.95
1	11.2	1.6	1.20	0.6	31	13	2.32	2.32	1.92	4.45
1	12.8	1.6	1.30	0.6	40	16	2.43	2.43	2.08	5.06
1	14.4	1.6	1.40	0.6	35	15	2.27	2.27	2.24	5.09
1	16.0	1.6	1.30	0.6	60	26	2.25	2.25	2.08	4.67
1	17.6	1.6	1.30	0.6	52	19	2.66	2.66	2.08	5.53
1	19.2	1.6	1.20	0.6	55	30	1.79	1.79	1.92	3.44
1	20.8	1.6	1.30	0.6	60	34	1.73	1.73	2.08	3.59
1	22.4	1.6	1.40	0.6	59	26	2.21	2.21	2.24	4.95
1	24.0	1.6	1.20	0.6	75	33	2.21	2.21	1.92	4.25
1	25.6	1.6	1.10	0.6	50	26	1.88	1.88	1.76	3.30
1	27.2	1.6	1.00	0.6	65	33	1.92	1.92	1.60	3.08
1	28.8	1.6	0.90	0.6	65	34	1.87	1.87	1.44	2.69
1	30.4	1.6	0.70	0.6	40	22	1.78	1.78	1.12	1.99
1	32.0	1.6	0.70	0.6	36	21	1.68	1.68	1.12	1.88
1	33.6	1.6	0.60	0.6	27	19	1.40	1.40	0.96	1.34
1	35.2	1.6	0.50	0.6	30	32	0.93	0.93	0.80	0.74
1	36.8	1.6	0.30	0.6	1	80	0.04	0.04	0.48	0.02
1	38.4	1.6	0.22		0		0.00	0.00	0.35	0.00
	40.0									
									36.32	70.56

ESVI4_9-26-02 (TRIP 2)

ESVI4_9-26-02 (TRIP 2)										
Gage = 2.05' at 15:00										
W = 53.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	2.1	2.1	1.45	0.6	0	60	0.00	0.00	3.05	0.00
1	4.2	2.1	0.90	0.6	2	26	0.10	0.10	1.89	0.20
1	6.3	2.1	1.05	0.6	10	27	0.39	0.39	2.21	0.85
1	8.4	2.1	1.05	0.6	20	31	0.65	0.65	2.21	1.43
1	10.6	2.2	1.05	0.6	30	32	0.93	0.93	2.31	2.15
1	12.7	2.1	1.20	0.6	50	45.1	1.10	1.10	2.52	2.76
1	14.8	2.1	1.25	0.6	50	41.9	1.18	1.18	2.63	3.09
1	16.9	2.1	1.35	0.6	50	41	1.20	1.20	2.84	3.41
1	19.0	2.1	1.30	0.6	50	45.2	1.09	1.09	2.73	2.98
1	21.1	2.1	1.20	0.6	30	20.7	1.42	1.42	2.52	3.58
1	23.2	2.1	1.20	0.6	30	22.5	1.31	1.31	2.52	3.30
1	25.3	2.1	1.15	0.6	30	27.4	1.08	1.08	2.42	2.61
1	27.4	2.1	1.15	0.6	30	28	1.06	1.06	2.42	2.56
1	29.5	2.1	1.20	0.6	30	22.2	1.33	1.33	2.52	3.35
1	31.6	2.1	1.10	0.6	30	18.6	1.58	1.58	2.31	3.65
1	33.7	2.1	1.05	0.6	30	17.6	1.67	1.67	2.21	3.68
1	35.8	2.1	1.00	0.6	30	18.1	1.62	1.62	2.10	3.41
1	37.9	2.1	0.85	0.6	30	19.6	1.50	1.50	1.79	2.68
1	40.0	2.1	0.75	0.6	30	22.3	1.32	1.32	1.58	2.08
1	42.1	2.1	0.68	0.6	30	24.6	1.20	1.20	1.43	1.72
1	44.2	2.1	0.50	0.6	30	27.5	1.08	1.08	1.05	1.13
1	46.3	2.1	0.35	0.6	20	21.6	0.92	0.92	0.73	0.68
1	48.4	2.1	0.26	0.6	10	16.6	0.61	0.61	0.55	0.33
1	50.5	2.1	0.19	0.6	6	16.6	0.38	0.38	0.40	0.15
	53.0									
									48.89	51.78

ESVI4_10-30-02 (TRIP 3)

ESVI4_10-30-02 (TRIP 3)										
Gage = 2.67' at 9:00										
W = 66.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	2.6	2.6	1.06	0.6	50	47.4	1.04	1.04	2.76	2.88
1	5.2	2.6	1.17	0.6	50	23.0	2.12	2.12	3.04	6.44
1	7.8	2.6	1.25	0.6	50	21.3	2.28	2.28	3.25	7.42
1	10.4	2.6	1.15	0.6	50	23.5	2.07	2.07	2.99	6.20
1	13.0	2.6	1.15	0.6	50	22.3	2.18	2.18	2.99	6.53
1	15.6	2.6	1.00	0.6	50	18.8	2.58	2.58	2.60	6.72
1	18.2	2.6	1.00	0.6	50	15.6	3.11	3.11	2.60	8.08
1	20.8	2.6	1.05	0.6	50	15.4	3.15	3.15	2.73	8.59
1	23.4	2.6	1.15	0.6	50	14.5	3.34	3.34	2.99	9.99
1	26.0	2.6	1.22	0.6	50	14.7	3.30	3.30	3.17	10.46
1	28.6	2.6	1.30	0.6	50	16.8	2.89	2.89	3.38	9.76
1	31.2	2.6	1.40	0.6	50	13.8	3.51	3.51	3.64	12.77
1	33.8	2.6	1.45	0.6	50	14.3	3.39	3.39	3.77	12.77
1	36.4	2.6	1.58	0.6	50	13.4	3.61	3.61	4.11	14.84
1	39.0	2.6	1.63	0.6	50	13.8	3.51	3.51	4.24	14.87
1	41.6	2.6	1.55	0.6	50	16.4	2.96	2.96	4.03	11.92
1	44.2	2.6	1.53	0.6	50	15.2	3.19	3.19	3.98	12.69
1	46.8	2.6	1.43	0.6	50	16.3	2.98	2.98	3.72	11.06
1	49.4	2.6	1.20	0.6	50	17.3	2.81	2.81	3.12	8.75
1	52.0	2.6	1.10	0.6	50	19.3	2.52	2.52	2.86	7.20
1	54.6	2.6	0.83	0.6	50	22.4	2.17	2.17	2.16	4.69
1	57.2	2.6	0.55	0.6	50	23.3	2.09	2.09	1.43	2.99
1	59.8	2.6	0.57	0.6	50	27.4	1.78	1.78	1.48	2.64
1	62.4	2.6	0.42	0.6	50	30.2	1.62	1.62	1.09	1.77
	66.0									
									72.12	202.05

ESVI4_12-11-02 (TRIP 4)

ESVI4_12-11-02 (TRIP 4)										
Gage = 2.27' at 14:00										
W = 56.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	1.0		0.00							
1	4.2	3.2	0.60	0.6	5	24.9	0.22	0.22	1.92	0.43
1	6.4	2.2	0.72	0.6	20	9.8	1.99	1.99	1.58	3.15
1	8.6	2.2	0.74	0.6	40	19.1	2.04	2.04	1.63	3.32
1	10.8	2.2	0.70	0.6	40	31.6	1.25	1.25	1.54	1.92
1	13.0	2.2	0.62	0.6	40	29.0	1.36	1.36	1.36	1.85
1	15.2	2.2	0.54	0.6	40	30.3	1.30	1.30	1.19	1.54
1	17.4	2.2	0.45	0.6	40	20.8	1.88	1.88	0.99	1.86
1	19.6	2.2	0.51	0.6	40	17.2	2.26	2.26	1.12	2.54
1	21.8	2.2	0.50	0.6	40	15.4	2.52	2.52	1.10	2.78
1	24.0	2.2	0.57	0.6	40	16.3	2.39	2.39	1.25	2.99
1	26.2	2.2	0.62	0.6	40	16.0	2.43	2.43	1.36	3.32
1	28.4	2.2	0.70	0.6	40	15.1	2.57	2.57	1.54	3.96
1	30.6	2.2	0.80	0.6	40	15.6	2.49	2.49	1.76	4.39
1	32.8	2.2	0.85	0.6	40	15.6	2.49	2.49	1.87	4.66
1	35.0	2.2	0.95	0.6	40	14.7	2.64	2.64	2.09	5.52
1	37.2	2.2	1.04	0.6	40	13.9	2.79	2.79	2.29	6.39
1	39.4	2.2	1.09	0.6	40	13.8	2.81	2.81	2.40	6.75
1	41.6	2.2	1.10	0.6	40	12.5	3.10	3.10	2.42	7.51
1	43.8	2.2	1.06	0.6	40	14.4	2.70	2.70	2.33	6.29
1	46.0	2.2	0.99	0.6	40	14.7	2.64	2.64	2.18	5.76
1	48.2	2.2	0.97	0.6	40	14.0	2.77	2.77	2.13	5.92
1	50.4	2.2	0.74	0.6	40	15.2	2.56	2.56	1.63	4.16
1	52.6	2.2	0.66	0.6	40	15.6	2.49	2.49	1.45	3.62
1	54.8	2.2	0.52	0.6	40	18.7	2.08	2.08	1.14	2.38
	56.0									
									40.29	93.02

GLDI4_9-5-02 (TRIP 1)

GLDI4_9-5-02 (TRIP 1)										
Gage = 7.80' at 9:00										
W = 79.50'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	79.5		0.00							
1	76.2	3.3	1.10	0.6	0		0.00	0.00	3.63	0.00
1	73.0	3.2	1.43	0.6	0		0.00	0.00	4.58	0.00
1	69.8	3.2	1.24	0.6	10	38	0.28	0.28	3.97	1.13
1	66.6	3.2	1.38	0.6	15	37	0.42	0.42	4.42	1.86
1	63.4	3.2	1.16	0.6	20	28	0.72	0.72	3.71	2.66
1	60.2	3.2	0.71	0.6	30	33	0.90	0.90	2.27	2.05
1	57.2	3.0	0.80	0.6	35	34	1.02	1.02	2.40	2.45
1	54.0	3.2	0.87	0.6	30	26	1.14	1.14	2.78	3.17
1	50.8	3.2	0.90	0.6	40	39	1.02	1.02	2.88	2.92
1	47.6	3.2	0.90	0.6	30	29	1.02	1.02	2.88	2.95
1	44.4	3.2	0.90	0.6	30	31	0.96	0.96	2.88	2.76
1	41.2	3.2	0.80	0.6	35	30	1.15	1.15	2.56	2.95
1	38.0	3.2	0.80	0.6	30	27	1.10	1.10	2.56	2.81
1	34.8	3.2	0.80	0.6	30	32	0.93	0.93	2.56	2.38
1	31.6	3.2	0.58	0.6	30	32	0.93	0.93	1.86	1.73
1	28.4	3.2	0.67	0.6	25	31	0.81	0.81	2.14	1.73
1	25.2	3.2	0.61	0.6	25	31	0.81	0.81	1.95	1.57
1	22.0	3.2	0.62	0.6	25	44	0.58	0.58	1.98	1.14
1	18.8	3.2	0.60	0.6	25	39	0.65	0.65	1.92	1.24
1	15.6	3.2	0.62	0.6	20	37	0.55	0.55	1.98	1.09
1	12.4	3.2	0.63	0.6	20	36	0.56	0.56	2.02	1.14
1	9.2	3.2	0.70	0.6	15	26	0.58	0.58	2.24	1.31
1	6.0	3.2	0.88	0.6	11	36	0.32	0.32	2.82	0.91
1	2.8	3.2	0.45	0.6	1	40	0.06	0.06	1.44	0.08
	0.0									
									64.43	42.03

GLDI4_9-25-02 (TRIP 2)

GLDI4_9-25-02 (TRIP 2)												
Gage = 7.17' at 17:00												
W = 49.0'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0.0		0.00									
1.000	2.0	2.0	0.35	0.6	20	52.9	0.39	0.39	0.70	0.28	0	90
0.985	4.0	2.0	0.48	0.6	20	34.1	0.59	0.59	0.96	0.56	350	440
0.985	6.0	2.0	0.48	0.6	20	38.1	0.53	0.53	0.96	0.51	350	440
0.985	8.0	2.0	0.48	0.6	20	35.8	0.57	0.57	0.96	0.54	350	440
0.940	10.0	2.0	0.57	0.6	20	27.5	0.73	0.73	1.14	0.78	340	430
0.940	12.0	2.0	0.65	0.6	20	26.2	0.76	0.76	1.30	0.93	340	430
0.940	14.0	2.0	0.72	0.6	20	27.8	0.72	0.72	1.44	0.98	340	430
0.940	16.0	2.0	0.64	0.6	20	23.4	0.85	0.85	1.28	1.02	340	430
0.940	18.0	2.0	0.47	0.6	20	20.1	0.99	0.99	0.94	0.87	340	430
0.940	20.0	2.0	0.53	0.6	20	19.4	1.02	1.02	1.06	1.02	340	430
0.940	22.0	2.0	0.48	0.6	20	21.7	0.92	0.92	0.96	0.83	340	430
0.940	24.0	2.0	0.56	0.6	20	22.6	0.88	0.88	1.12	0.93	340	430
0.940	26.0	2.0	0.58	0.6	20	20.6	0.96	0.96	1.16	1.05	340	430
0.985	28.0	2.0	0.49	0.6	20	25.5	0.78	0.78	0.98	0.76	350	440
0.985	30.0	2.0	0.40	0.6	20	27	0.74	0.74	0.80	0.58	350	440
0.985	32.0	2.0	0.33	0.6	20	24.3	0.82	0.82	0.66	0.53	350	440
1.000	34.0	2.0	0.37	0.6	20	31.9	0.63	0.63	0.74	0.47	0	90
1.000	36.0	2.0	0.32	0.6	20	33.8	0.60	0.60	0.64	0.38	0	90
1.000	38.0	2.0	0.34	0.6	20	40.2	0.51	0.51	0.68	0.35	0	90
1.000	40.0	2.0	0.36	0.6	20	35.2	0.58	0.58	0.72	0.42	0	90
1.000	42.0	2.0	0.40	0.6	20	27.5	0.73	0.73	0.80	0.58	0	90
1.000	44.0	2.0	0.65	0.6	20	43.2	0.48	0.48	1.30	0.62	0	90
1.000	46.0	2.0	0.28	0.6	20	49.7	0.42	0.42	0.56	0.23	0	90
	48.0											
21.86										15.21		

GLDI4_12-12-02 (TRIP 3)

GLDI4_12-12-02 (TRIP 3)										
Gage = 8.05' at 16:00										
W = 83.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	3.5	3.5	1.00	0.6	0	0	0.00	0.00	3.50	0.00
1	7.0	3.5	0.65	0.6	2	22.4	0.12	0.12	2.28	0.27
1	10.5	3.5	0.94	0.6	10	14.0	0.72	0.72	3.29	2.36
1	14.0	3.5	1.00	0.6	20	29.1	0.69	0.69	3.50	2.42
1	17.5	3.5	1.10	0.6	20	30.5	0.66	0.66	3.85	2.54
1	21.0	3.5	1.16	0.6	20	25.1	0.80	0.80	4.06	3.23
1	24.5	3.5	1.06	0.6	20	18.6	1.06	1.06	3.71	3.94
1	28.0	3.5	1.33	0.6	20	19.8	1.00	1.00	4.66	4.66
1	31.5	3.5	1.48	0.6	20	19.7	1.01	1.01	5.18	5.21
1	35.0	3.5	1.50	0.6	20	22.0	0.90	0.90	5.25	4.74
1	38.5	3.5	1.37	0.6	20	25.8	0.78	0.78	4.80	3.72
1	42.0	3.5	1.29	0.6	20	22.9	0.87	0.87	4.52	3.93
1	45.5	3.5	1.24	0.6	20	23.8	0.84	0.84	4.34	3.64
1	49.0	3.5	1.25	0.6	20	20.4	0.97	0.97	4.38	4.25
1	52.5	3.5	1.24	0.6	20	21.6	0.92	0.92	4.34	3.99
1	56.0	3.5	1.20	0.6	20	22.8	0.87	0.87	4.20	3.67
1	59.5	3.5	1.18	0.6	20	22.6	0.88	0.88	4.13	3.64
1	63.0	3.5	1.20	0.6	20	30.6	0.66	0.66	4.20	2.77
1	66.5	3.5	0.97	0.6	20	43.2	0.48	0.48	3.40	1.61
1	70.0	3.5	1.00	0.6	20	39.6	0.52	0.52	3.50	1.81
1	73.5	3.5	1.03	0.6	20	32.7	0.62	0.62	3.61	2.23
1	77.0	3.5	1.18	0.6	15	45.8	0.35	0.35	4.13	1.43
1	80.5	3.5	0.39	0.6	0		0.00	0.00	1.37	0.00
	83.0									
									90.16	66.04

GLDI4_4-18-03 (TRIP 4)

GLDI4_4-18-03 (TRIP 4)										
Gage = 9.50' at 10:00										
W = 87.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	3.5	3.5	2.15	0.6	19	40.8	0.48	0.48	7.53	3.60
1	7.0	3.5	3.00	0.6	34	41.1	0.83	0.83	10.50	8.66
1	10.5	3.5	2.73	0.6	7	8.4	0.83	0.83	9.56	7.94
1	14.0	3.5	2.35	0.6	26	40.7	0.64	0.64	8.23	5.30
1	17.5	3.5	2.60	0.6	44	40.4	1.08	1.08	9.10	9.80
1	21.0	3.5	2.68	0.6	15	12.2	1.21	1.21	9.38	11.36
1	24.5	3.5	2.91	0.6	5	4.1	1.20	1.20	10.19	12.24
1	28.0	3.5	2.74	0.6	46	40.3	1.13	1.13	9.59	10.81
1	31.5	3.5	2.70	0.6	58	40.5	1.41	1.41	9.45	13.28
1	35.0	3.5	2.60	0.6	30	19.9	1.48	1.48	9.10	13.45
1	38.5	3.5	2.53	0.6	30	22.7	1.30	1.30	8.86	11.51
1	42.0	3.5	2.52	0.6	30	23.1	1.28	1.28	8.82	11.27
1	45.5	3.5	2.70	0.6	30	21.6	1.36	1.36	9.45	12.89
1	49.0	3.5	2.88	0.6	30	27.3	1.09	1.09	10.08	10.95
1	52.5	3.5	2.39	0.6	30	20.6	1.43	1.43	8.37	11.95
1	56.0	3.5	2.60	0.6	30	20.8	1.42	1.42	9.10	12.88
1	59.5	3.5	2.70	0.6	30	24.3	1.22	1.22	9.45	11.49
1	63.0	3.5	2.55	0.6	30	22.2	1.33	1.33	8.93	11.86
1	66.5	3.5	2.60	0.6	30	21	1.40	1.40	9.10	12.76
1	70.0	3.5	2.50	0.6	30	26.9	1.10	1.10	8.75	9.64
1	73.5	3.5	2.37	0.6	30	21.7	1.36	1.36	8.30	11.27
1	77.0	3.5	2.10	0.6	30	24.4	1.21	1.21	7.35	8.90
1	80.5	3.5	2.12	0.6	30	25.7	1.15	1.15	7.42	8.55
1	84.0	3.5	1.45	0.6	30	62.4	0.49	0.49	5.08	2.50
	87.0									
									211.65	244.86

LKCI4_9-11-02 (TRIP 1)

LKCI4_9-11-02 (TRIP 1)										
Gage = 8.22' at 14:00										
W = 97'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	3.9	3.9	0.30		0		0.00			
1	6.8	2.9	0.40		0		0.00			
1	10.7	3.9	0.70		0		0.00			
1	14.6	3.9	1.28	0.6	15	40	0.39		4.99	1.95
1	18.5	3.9	1.52	0.6	35	40	0.87		5.93	5.16
1	22.4	3.9	1.58	0.6	42	40	1.04		6.16	6.40
1	26.3	3.9	1.62	0.6	49	40	1.21		6.32	7.63
1	30.2	3.9	1.90	0.6	53	40	1.30		7.41	9.66
1	34.1	3.9	1.98	0.6	51	40	1.26		7.72	9.69
1	38.0	3.9	2.05	0.6	47	40	1.16		8.00	9.27
1	41.9	3.9	2.34	0.6	48	40	1.18		9.13	10.80
1	45.8	3.9	2.45	0.6	40	40	0.99		9.56	9.47
1	49.7	3.9	2.59	0.6	50	40	1.23		10.10	12.43
1	53.6	3.9	2.91	0.6	45	40	1.11		11.35	12.61
1	57.5	3.9	2.99	0.6	40	40	0.99		11.66	11.56
1	61.4	3.9	3.89	0.6	45.5	40	1.12		15.17	17.04
1	64.3	2.9	2.00	0.6	22	40	0.56		5.80	3.24
	67.0									
									119.29	126.90

LKCI4_10-9-02 (TRIP 2)

LKCI4_10-9-02 (TRIP 2)										
Gage = 9.50' at 9:50										
W = 202'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	14.0		0.00							
1	22.0	8	1.40	0.6	30	31.4	0.95	0.95	11.20	10.62
1	30.0	8	1.06	0.6	30	22.4	1.32	1.32	8.48	11.17
1	38.0	8	0.90	0.6	30	19.9	1.48	1.48	7.20	10.64
1	46.0	8	1.03	0.6	30	14.2	2.06	2.06	8.24	16.97
1	54.0	8	1.09	0.6	30	15.5	1.89	1.89	8.72	16.47
1	62.0	8	1.09	0.6	30	14.6	2.00	2.00	8.72	17.47
1	70.0	8	1.22	0.6	30	13.8	2.12	2.12	9.76	20.67
1	78.0	8	1.62	0.6	30	15.0	1.95	1.95	12.96	25.28
1	86.0	8	1.13	0.6	30	13.4	2.18	2.18	9.04	19.71
1	94.0	8	2.45	0.6	30	10.9	2.67	2.67	19.60	52.39
1	102.0	8	2.65	0.6	50	21.2	2.30	2.30	21.20	48.66
1	110.0	8	2.53	0.6	50	22.7	2.15	2.15	20.24	43.43
1	118.0	8	2.46	0.6	50	24.3	2.01	2.01	19.68	39.48
1	126.0	8	2.53	0.6	50	23.7	2.06	2.06	20.24	41.62
1	134.0	8	2.29	0.6	50	24.4	2.00	2.00	18.32	36.61
1	142.0	8	2.14	0.6	50	24.3	2.01	2.01	17.12	34.35
1	150.0	8	1.87	0.6	50	31.0	1.58	1.58	14.96	23.63
1	158.0	8	1.89	0.6	50	28.6	1.71	1.71	15.12	25.84
1	166.0	8	1.76	0.6	50	34.4	1.43	1.43	14.08	20.08
1	174.0	8	1.44	0.6	30	22.0	1.34	1.34	11.52	15.44
1	182.0	8	1.18	0.6	30	17.0	1.73	1.73	9.44	16.29
1	190.0	8	1.81	0.6	30	19.0	1.55	1.55	14.48	22.40
1	198.0	8	1.58	0.6	30	20.1	1.46	1.46	12.64	18.50
1	206.0	8	1.80	0.6	30	60.1	0.51	0.51	14.40	7.35
	216.0									
									327.36	595.07

LKCI4_10-31-02 (TRIP 3)

LKCI4_10-31-02 (TRIP 3)										
Gage = 8.90' at 10:00										
W = 169'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	6.8	6.8	2.80	0.6	10	17.5	0.58	0.58	19.04	11.04
1	13.6	6.8	3.30	0.8	30	17.0	1.73	2.09	22.44	46.86
	13.6	0		0.2	30	11.9	2.45	0		
1	20.4	6.8	3.45	0.8	30	15.4	1.90	2.15	23.46	50.35
	20.4	0		0.2	30	12.2	2.39	0		
1	27.2	6.8	3.60	0.8	30	12.5	2.34	1.98	24.48	48.38
	27.2	0		0.2	20	12.1	1.62	0		
1	34.0	6.8	3.30	0.8	30	13.9	2.10	2.29	22.44	51.33
	34.0	0		0.2	30	11.8	2.47	0		
1	40.8	6.8	3.15	0.8	30	16.3	1.80	1.96	21.42	41.94
	40.8	0		0.2	30	13.8	2.12	0		
1	47.6	6.8	2.85	0.6	25	15.3	1.60	1.60	19.38	31.00
1	54.4	6.8	1.90	0.6	30	18.4	1.60	1.60	12.92	20.62
1	61.2	6.8	1.62	0.6	30	18.0	1.63	1.63	11.02	17.97
1	68.0	6.8	1.65	0.6	30	19.2	1.53	1.53	11.22	17.18
1	74.8	6.8	1.60	0.6	30	21.2	1.39	1.39	10.88	15.12
1	81.6	6.8	1.55	0.6	30	17.1	1.72	1.72	10.54	18.08
1	88.4	6.8	1.30	0.6	30	18.4	1.60	1.60	8.84	14.11
1	95.2	6.8	1.09	0.6	30	23.1	1.28	1.28	7.41	9.47
1	102.0	6.8	0.70	0.6	30	24.9	1.19	1.19	4.76	5.65
1	108.8	6.8	0.50	0.6	30	36.4	0.82	0.82	3.40	2.80
1	115.6	6.8	0.37	0.6	20	14.4	1.36	1.36	2.52	3.43
1	122.4	6.8	0.49	0.6	20	14.0	1.40	1.40	3.33	4.67
1	129.2	6.8	0.60	0.6	20	15.3	1.29	1.29	4.08	5.25
1	136.0	6.8	0.30	0.6	14	44.3	0.33	0.33	2.04	0.68
1	142.8	6.8	0.40	0.6	20	25.3	0.79	0.79	2.72	2.15
1	149.6	6.8	0.45	0.6	20	29.0	0.69	0.69	3.06	2.12
1	156.4	6.8	0.70	0.6	20	25.3	0.79	0.79	4.76	3.76
1	163.2	6.8	0.78	0.6	2	18.0	0.14	0.14	5.30	0.73
	169.0									
									261.46	424.68

LKCI4_11-14-02 (TRIP 4)

LKCI4_11-14-02 (TRIP 4)										
Gage = 8.51' at 16:30										
W = 84'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	3.4	3.4	0.35	0.6	20	31.9	0.63	0.63	1.19	0.75
1	6.8	3.4	0.80	0.6	20	37.7	0.54	0.54	2.72	1.47
1	10.2	3.4	0.90	0.6	20	23.4	0.85	0.85	3.06	2.61
1	13.6	3.4	1.00	0.6	20	23.5	0.85	0.85	3.40	2.88
1	17.0	3.4	1.08	0.6	20	20.3	0.98	0.98	3.67	3.59
1	20.4	3.4	1.04	0.6	20	16.5	1.19	1.19	3.54	4.22
1	23.8	3.4	1.28	0.6	30	26.2	1.13	1.13	4.35	4.92
1	27.2	3.4	1.41	0.6	30	19.5	1.51	1.51	4.79	7.23
1	30.6	3.4	1.60	0.6	30	20.5	1.44	1.44	5.44	7.81
1	34.0	3.4	1.85	0.6	30	22.5	1.31	1.31	6.29	8.25
1	37.4	3.4	2.00	0.6	30	19.5	1.51	1.51	6.80	10.25
1	40.8	3.4	2.30	0.6	30	17.9	1.64	1.64	7.82	12.82
1	44.2	3.4	2.60	0.6	40	25.2	1.55	1.55	8.84	13.74
1	47.6	3.4	2.70	0.6	40	21.1	1.85	1.85	9.18	16.99
1	51.0	3.4	2.65	0.6	40	21.1	1.85	1.85	9.01	16.68
1	54.4	3.4	2.80	0.6	40	19.3	2.02	2.02	9.52	19.24
1	57.8	3.4	2.98	0.6	40	21.3	1.83	1.83	10.13	18.58
1	61.2	3.4	2.85	0.6	40	25.7	1.53	1.53	9.69	14.78
1	64.6	3.4	2.99	0.6	30	14.3	2.04	2.04	10.17	20.79
1	68.0	3.4	3.30	0.8	30	19.4	1.52	1.52	11.22	17.00
	0			0.2	30	14.4	2.03	2.03		
1	71.4	3.4	3.40	0.8	30	21.6	1.36	1.36	11.56	15.77
	0			0.2	30	13.9	2.10	2.10		
1	74.8	3.4	3.30	0.8	30	19.9	1.48	1.48	11.22	16.59
	0			0.2	30	15.6	1.88	1.88		
1	78.2	3.4	3.70	0.8	30	23.9	1.24	1.24	12.58	15.55
	0			0.2	30	13.3	2.20	2.20		
1	81.6	3.4	2.00	0.6	30	27.2	1.09	1.09	6.80	7.41
	84.0									
									172.99	259.93

NEPI4_9-3-02 (TRIP 1)

NEPI4_9-3-02 (TRIP 1)										
Gage = 14.08' at 12:00										
W=60.5'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0									
	2.4		0.15							
1	4.8	4.8	0.40	0.6	15	45.3	0.35	0.35	1.92	0.67
1	7.3	2.5	0.70	0.6	15	45	0.35	0.35	1.75	0.61
1	9.7	2.4	0.90	0.6	15	30.2	0.51	0.51	2.16	1.10
1	12.1	2.4	0.65	0.6	20	31.8	0.63	0.63	1.56	0.99
1	14.5	2.4	0.77	0.6	20	30.4	0.66	0.66	1.85	1.22
1	16.9	2.4	1.00	0.6	20	32	0.63	0.63	2.40	1.51
1	19.4	2.5	0.90	0.6	25	30.2	0.83	0.83	2.25	1.86
1	21.7	2.3	1.00	0.6	30	39.9	0.75	0.75	2.30	1.73
1	24.2	2.5	1.10	0.6	25	36.5	0.69	0.69	2.75	1.89
1	26.6	2.4	1.10	0.6	25	40.1	0.63	0.63	2.64	1.66
1	29.0	2.4	1.00	0.6	25	41.4	0.61	0.61	2.40	1.47
1	31.5	2.5	1.10	0.6	20	33.7	0.60	0.60	2.75	1.65
1	33.9	2.4	1.10	0.6	25	39.4	0.64	0.64	2.64	1.69
1	36.3	2.4	1.10	0.6	20	37.2	0.55	0.55	2.64	1.44
1	38.7	2.4	1.10	0.6	20	43.5	0.47	0.47	2.64	1.25
1	41.1	2.4	1.10	0.6	20	32.4	0.62	0.62	2.64	1.65
1	43.6	2.5	0.90	0.6	20	39.4	0.52	0.52	2.25	1.17
1	46.0	2.4	0.80	0.6	20	32.5	0.62	0.62	1.92	1.19
1	48.4	2.4	0.70	0.6	20	35.7	0.57	0.57	1.68	0.96
1	50.8	2.4	0.60	0.6	20	35.2	0.58	0.58	1.44	0.83
1	53.2	2.4	0.65	0.6	20	39.4	0.52	0.52	1.56	0.81
0.97	55.7	2.5	0.50	0.6	20	39.5	0.52	0.50	1.25	0.63
0.97	58.0	2.3	0.60	0.6	10	39.4	0.27	0.27	1.38	0.37
	60.5									
									48.77	28.35

NEPI4_9-24-02 (TRIP 2)

NEPI4_9-24-02 (TRIP 2)										
Gage = 14.22' at 12:30										
W=60.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0									
1	2.4	2.4	0.38	0.6	0		0			
1	4.8	2.4	0.75	0.6	10	50	0.22	0.22	1.80	0.40
1	7.2	2.4	0.88	0.6	10	33.3	0.32	0.32	2.11	0.67
1	9.6	2.4	0.83	0.6	10	25.9	0.40	0.40	1.99	0.80
1	12.0	2.4	0.87	0.6	10	17.2	0.59	0.59	2.09	1.23
1	14.4	2.4	0.98	0.6	10	13.9	0.72	0.72	2.35	1.70
1	16.8	2.4	1.10	0.6	10	14.1	0.71	0.71	2.64	1.88
1	19.2	2.4	1.11	0.6	10	12.8	0.78	0.78	2.66	2.08
1	21.6	2.4	1.13	0.6	10	13.9	0.72	0.72	2.71	1.96
1	24.0	2.4	1.22	0.6	10	11.2	0.89	0.89	2.93	2.60
1	26.4	2.4	1.17	0.6	10	12.8	0.78	0.78	2.81	2.19
1	28.8	2.4	1.16	0.6	10	11.4	0.87	0.87	2.78	2.43
1	31.2	2.4	1.15	0.6	10	12.8	0.78	0.78	2.76	2.16
1	33.6	2.4	1.20	0.6	10	15.8	0.64	0.64	2.88	1.84
1	36.0	2.4	1.17	0.6	10	15.3	0.66	0.66	2.81	1.85
1	38.4	2.4	1.12	0.6	10	12.8	0.78	0.78	2.69	2.10
1	40.8	2.4	1.12	0.6	10	13.7	0.73	0.73	2.69	1.97
1	43.2	2.4	1.03	0.6	10	11.2	0.89	0.89	2.47	2.20
1	45.6	2.4	0.89	0.6	20	26.8	0.75	0.75	2.14	1.60
1	48.0	2.4	0.90	0.6	20	36.3	0.56	0.56	2.16	1.21
1	50.4	2.4	0.88	0.6	20	31.3	0.64	0.64	2.11	1.36
1	52.8	2.4	0.68	0.6	20	35.8	0.57	0.57	1.63	0.93
1	55.2	2.4	0.64	0.6	20	40.8	0.50	0.50	1.54	0.77
1	57.6	2.4	0.7	0.6	20	53.6	0.39	0.39	1.68	0.65
	60.0									
									54.43	36.57

NEPI4_11-1-02 (TRIP 3)

NEPI4_11-1-02 (TRIP 3)										
Gage = 14.71' at 14:30										
W=92.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0									
1	3.7	3.7	0.90	0.6	20	22.7	0.88	0.88	3.33	2.92
1	7.4	3.7	0.80	0.6	20	21.0	0.95	0.95	2.96	2.80
1	11.1	3.7	0.81	0.6	20	24.2	0.82	0.82	3.00	2.47
1	14.8	3.7	0.79	0.6	20	20.7	0.96	0.96	2.92	2.80
1	18.5	3.7	0.95	0.6	20	20.6	0.96	0.96	3.52	3.39
1	22.2	3.7	0.85	0.6	20	19.8	1.00	1.00	3.15	3.15
1	25.9	3.7	1.08	0.6	20	18.4	1.07	1.07	4.00	4.29
1	29.6	3.7	1.19	0.6	20	19.5	1.02	1.02	4.40	4.47
1	33.3	3.7	0.99	0.6	20	18.9	1.05	1.05	3.66	3.83
1	37.0	3.7	0.95	0.6	20	15.2	1.29	1.29	3.52	4.55
1	40.7	3.7	0.99	0.6	20	13.5	1.45	1.45	3.66	5.32
1	44.4	3.7	0.90	0.6	30	21.0	1.40	1.40	3.33	4.67
1	48.1	3.7	0.75	0.6	30	23.7	1.25	1.25	2.78	3.46
1	51.8	3.7	0.85	0.6	30	28.1	1.06	1.06	3.15	3.32
1	55.5	3.7	1.02	0.6	30	25.9	1.14	1.14	3.77	4.31
1	59.2	3.7	1.34	0.6	30	22.3	1.32	1.32	4.96	6.56
1	62.9	3.7	1.34	0.6	30	24.3	1.22	1.22	4.96	6.03
1	66.6	3.7	1.45	0.6	30	19.5	1.51	1.51	5.36	8.09
1	70.3	3.7	1.45	0.6	30	23.1	1.28	1.28	5.37	6.86
1	74.0	3.7	1.37	0.6	30	18.2	1.61	1.61	5.07	8.18
1	77.7	3.7	1.38	0.6	30	20.4	1.44	1.44	5.11	7.37
1	81.4	3.7	1.30	0.6	30	21.4	1.38	1.38	4.81	6.62
1	85.1	3.7	1.20	0.6	30	25.9	1.14	1.14	4.44	5.07
1	88.8	3.7	1.25	0.6	10	13.2	0.76	0.76	4.63	3.51
	92.0									
									95.83	114.04

NEPI4_12-13-02 (TRIP 4)

NEPI4_12-13-02 (TRIP 4)										
Gage = 14.61' at 15:30										
W=92.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0									
1	3.5	3.5	0.60	0.6	8	45.0	0.20	0.20	2.10	0.42
1	7.0	3.5	0.65	0.6	10	37.8	0.28	0.28	2.28	0.65
1	10.5	3.5	0.64	0.6	10	30.0	0.35	0.35	2.24	0.79
1	14.0	3.5	0.66	0.6	10	30.6	0.34	0.34	2.31	0.80
1	17.5	3.5	0.70	0.6	10	31.1	0.34	0.34	2.45	0.83
1	21.0	3.5	0.91	0.6	10	21.6	0.48	0.48	3.19	1.51
1	24.5	3.5	0.94	0.6	10	21.9	0.47	0.47	3.29	1.54
1	28.0	3.5	0.94	0.6	10	19.8	0.52	0.52	3.29	1.70
1	31.5	3.5	0.86	0.6	10	16.8	0.60	0.60	3.01	1.81
1	35.0	3.5	0.70	0.6	10	20.3	0.50	0.50	2.45	1.23
1	38.5	3.5	0.81	0.6	10	20.5	0.50	0.50	2.84	1.42
1	42.0	3.5	0.89	0.6	10	16.3	0.62	0.62	3.12	1.93
1	45.5	3.5	0.81	0.6	10	18.4	0.55	0.55	2.84	1.57
1	49.0	3.5	0.78	0.6	10	18.4	0.55	0.55	2.73	1.51
1	52.5	3.5	0.73	0.6	10	23.3	0.44	0.44	2.56	1.13
1	56.0	3.5	0.72	0.6	10	21.7	0.47	0.47	2.52	1.19
1	59.5	3.5	0.83	0.6	10	19.0	0.54	0.54	2.91	1.56
1	63.0	3.5	1.26	0.6	10	16.7	0.61	0.61	4.41	2.67
1	66.5	3.5	1.44	0.6	10	14.2	0.71	0.71	5.04	3.56
1	70.0	3.5	1.49	0.6	10	9.7	1.02	1.02	5.22	5.32
1	73.5	3.5	1.58	0.6	10	10.8	0.92	0.92	5.53	5.09
1	77.0	3.5	1.49	0.6	10	7.6	1.29	1.29	5.22	6.75
1	80.5	3.5	1.30	0.6	10	10.6	0.94	0.94	4.55	4.26
1	84.0	3.5	1.26	0.6	10	16.4	0.62	0.62	4.41	2.72
1	87.5	3.5	1.38	0.6	10	31.8	0.33	0.33	4.83	0.83
	92.0									
									85.30	52.80

PROI4_9-11-02 (TRIP 1)

PROI4_9-11-02 (TRIP 1)												
Gage = 4.57' at 17:00												
W = 139'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)	Flow	Corr
factor	from IP			depth		(sec)		(ft/s)			Dir	Flow Dir
											(deg)	(deg)
	0.0											
1	5.5	5.5	0.65	0.6	11	40	0.30	0.30	3.58	1.05	0	90
1	11.0	5.5	0.85	0.6	16	40	0.42	0.42	4.68	1.94	0	90
1	16.5	5.5	0.94	0.6	20	40	0.51	0.51	5.17	2.64	0	90
1	22.0	5.5	1.15	0.6	25	40	0.63	0.63	6.33	3.99	0	90
1	27.5	5.5	1.35	0.6	34	40	0.85	0.85	7.43	6.29	0	90
1	33.0	5.5	1.58	0.6	47	40	1.16	1.16	8.69	10.07	0	90
1	38.5	5.5	2.00	0.6	51	40	1.26	1.26	11.00	13.80	0	90
1	44.0	5.5	2.15	0.6	57	40	1.40	1.40	11.83	16.54	0	90
1	49.5	5.5	2.20	0.6	66	40	1.62	1.62	12.10	19.54	0	90
1	55.0	5.5	2.30	0.6	68	40	1.66	1.66	12.65	21.04	0	90
1	60.5	5.5	2.40	0.6	59	40	1.45	1.45	13.20	19.10	0	90
1	66.0	5.5	2.20	0.6	60	40	1.47	1.47	12.10	17.80	0	90
1	71.5	5.5	1.91	0.6	64	40	1.57	1.57	10.51	16.46	0	90
1	77.0	5.5	1.80	0.6	59	40	1.45	1.45	9.90	14.33	0	90
1	82.5	5.5	2.05	0.6	50	40	1.23	1.23	11.28	13.88	0	90
1	88.0	5.5	1.91	0.6	56	40	1.38	1.38	10.51	14.44	0	90
1	93.5	5.5	1.85	0.6	52	40	1.28	1.28	10.18	13.01	0	90
1	99.0	5.5	1.80	0.6	53	40	1.30	1.30	9.90	12.90	0	90
1	104.5	5.5	1.91	0.6	43	40	1.06	1.06	10.51	11.17	0	90
1	110.0	5.5	1.90	0.6	44	40	1.09	1.09	10.45	11.36	0	90
1	115.5	5.5	1.90	0.6	33	40	0.82	0.82	10.45	8.60	0	90
1	121.0	5.5	1.90	0.6	27	40	0.68	0.68	10.45	7.10	0	90
0.866	126.5	5.5	2.30	0.6	12	40	0.32	0.32	12.65	3.49	30	60
-0.866	132.0	5.5	1.65	0.6	5	40	0.15	0.15	9.08	-1.19	150	-60
	139.0											
234.58										259.37		

PROI4_10-8-02 (TRIP 2)

PROI4_10-8-02 (TRIP 2)												
Gage = 7.79' at 15:15												
W = 206'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)	Flow	Corr
factor	from IP			depth		(sec)		(ft/s)			Dir	Flow Dir
											(deg)	(deg)
	0.00		0.00									
0.9848	8.25	8.25	3.10	0.8	30	50.3	1.33	1.63	25.58	40.95	350	440
0.9848	8.25	0.00	3.10	0.2	30	34.8	1.92	0.00	0.00	0.00	350	440
0.9848	16.50	8.25	2.80	0.6	30	33.8	1.98	1.98	23.10	44.93	350	440
0.9848	24.75	8.25	4.20	0.8	30	36.5	1.83	1.87	34.65	63.78	350	440
0.9848	24.75	0.00	4.20	0.2	30	35.0	1.91	0.00	0.00	0.00	350	440
0.9848	33.00	8.25	4.00	0.8	30	26.4	2.52	2.59	33.00	84.30	350	440
0.9848	33.00	0.00	4.00	0.2	30	25.0	2.66	0.00	0.00	0.00	350	440
0.9848	41.25	8.25	4.30	0.8	30	31.4	2.12	2.51	35.48	87.67	350	440
0.9848	41.25	0.00	4.30	0.2	30	23.0	2.89	0.00	0.00	0.00	350	440
0.9848	49.50	8.25	3.10	0.8	30	30.0	2.22	2.74	25.58	69.06	350	440
0.9848	49.50	0.00	3.10	0.2	30	20.4	3.26	0.00	0.00	0.00	350	440
0.9848	57.75	8.25	2.70	0.6	30	21.1	3.15	3.15	22.28	69.17	350	440
1	66.00	8.25	3.50	0.8	30	47.2	1.42	2.32	28.88	67.11	360	450
1	66.00	0.00	3.50	0.2	30	20.6	3.23	0.00	0.00	0.00	360	450
1	74.25	8.25	3.90	0.8	30	32.4	2.06	2.33	32.18	74.83	360	450
1	74.25	0.00	3.90	0.2	30	25.7	2.59	0.00	0.00	0.00	360	450
1	82.50	8.25	4.00	0.8	30	28.5	2.34	2.80	33.00	92.40	360	450
1	82.50	0.00	4.00	0.2	30	20.4	3.26	0.00	0.00	0.00	360	450
1	90.75	8.25	3.80	0.8	30	26.4	2.52	2.86	31.35	89.69	360	450
1	90.75	0.00	3.80	0.2	30	20.8	3.20	0.00	0.00	0.00	360	450
1	99.00	8.25	4.90	0.8	30	31.0	2.15	2.73	40.43	110.38	360	450
1	99.00	0.00	4.90	0.2	30	20.1	3.31	0.00	0.00	0.00	360	450
1	107.25	8.25	4.40	0.8	30	28.6	2.33	2.78	36.30	100.92	360	450
1	107.25	0.00	4.40	0.2	30	20.6	3.23	0.00	0.00	0.00	360	450
1	115.50	8.25	4.40	0.8	30	31.1	2.15	2.56	36.30	93.10	360	450
1	115.50	0.00	4.40	0.2	30	22.3	2.98	0.00	0.00	0.00	360	450
1	123.75	8.25	4.00	0.8	30	26.5	2.51	2.58	33.00	85.09	360	450
1	123.75	0.00	4.00	0.2	30	25.2	2.64	0.00	0.00	0.00	360	450
1	132.00	8.25	4.80	0.8	30	24.3	2.74	2.87	39.60	113.61	360	450
1	132.00	0.00	4.80	0.2	30	22.2	3.00	0.00	0.00	0.00	360	450
1	140.25	8.25	4.70	0.8	30	26.8	2.49	2.72	38.78	105.55	360	450
1	140.25	0.00	4.70	0.2	30	22.5	2.96	0.00	0.00	0.00	360	450
1	148.50	8.25	5.60	0.8	30	30.7	2.17	2.49	46.20	115.08	360	450
1	148.50	0.00	5.60	0.2	30	23.7	2.81	0.00	0.00	0.00	360	450
1	156.75	8.25	5.80	0.8	30	31.9	2.09	2.59	47.85	124.08	360	450
1	156.75	0.00	5.80	0.2	30	21.5	3.09	0.00	0.00	0.00	360	450
1	165.00	8.25	5.30	0.8	30	31.9	2.09	2.45	43.73	107.14	360	450
1	165.00	0.00	5.30	0.2	30	23.7	2.81	0.00	0.00	0.00	360	450
1	173.25	8.25	5.50	0.8	30	41.9	1.60	2.23	45.38	101.32	360	450
1	173.25	0.00	5.50	0.2	30	23.2	2.87	0.00	0.00	0.00	360	450
1	181.50	8.25	4.40	0.8	30	37.4	1.79	1.78	36.30	64.60	360	450
1	181.50	0.00	4.40	0.2	30	37.7	1.77	0.00	0.00	0.00	360	450
1	189.75	8.25	5.30	0.8	30	35.6	1.88	2.05	43.73	89.46	360	450
1	189.75	0.00	5.30	0.2	30	30.1	2.22	0.00	0.00	0.00	360	450
1	198.00	8.25	3.50	0.8	30	49.3	1.36	1.46	28.88	42.05	360	450
1	198.00	0.00	3.50	0.2	30	43.1	1.55	0.00	0.00	0.00	360	450
	206.00											
										841.50	2036.28	

PROI4_10-31-02 (TRIP 3)

PROI4_10-31-02 (TRIP 3)												
Gage = 5.63' at 12:20												
W = 199'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)	Flow	Corr
factor	from IP			depth		(sec)		(ft/s)			Dir	Flow Dir
											(deg)	(deg)
	0.0		0.00									
1	8.0	8.00	0.70	0.6	20	0.0	0.00	0.00	5.60	0.00	360	450
1	16.0	8.00	1.20	0.6	20	47.0	0.96	0.96	9.60	9.18	360	450
0.9848	24.0	8.00	2.10	0.6	20	28.4	1.57	1.57	16.80	25.99	350	440
0.9848	32.0	8.00	2.20	0.6	20	24.4	1.83	1.83	17.60	31.64	350	440
0.9962	40.0	8.00	1.70	0.6	20	20.3	2.19	2.19	13.60	29.68	355	445
0.9962	48.0	8.00	1.30	0.6	20	19.9	2.23	2.23	10.40	23.15	355	445
0.9962	56.0	8.00	1.40	0.6	20	18.6	2.39	2.39	11.20	26.65	355	445
0.9962	64.0	8.00	1.90	0.6	20	17.9	2.48	2.48	15.20	37.58	355	445
0.9962	72.0	8.00	2.40	0.6	20	20.1	2.21	2.21	19.20	42.31	355	445
0.9962	80.0	8.00	2.60	0.6	20	19.7	2.26	2.26	20.80	46.76	355	445
0.9962	88.0	8.00	2.80	0.6	20	21.0	2.12	2.12	22.40	47.26	355	445
1	96.0	8.00	2.50	0.6	20	18.6	2.39	2.39	20.00	47.78	360	450
1	104.0	8.00	2.80	0.6	20	19.4	2.29	2.29	22.40	51.32	360	450
1	112.0	8.00	2.60	0.6	20	22.2	2.00	2.00	20.80	41.69	360	450
1	120.0	8.00	2.60	0.6	20	22.9	1.94	1.94	20.80	40.43	360	450
1	128.0	8.00	3.00	0.8	20	27.0	1.65	1.95	24.00	46.89	360	450
1	128.0	0.00	3.00	0.2	20	19.7	2.26	0.00	0.00	0.00	360	450
1	136.0	8.00	2.80	0.6	20	19.2	2.31	2.31	22.40	51.85	360	450
1	144.0	8.00	3.20	0.8	20	23.2	1.92	2.16	25.60	55.30	360	450
1	144.0	0.00	3.20	0.2	20	18.5	2.40	0.00	0.00	0.00	360	450
1	152.0	8.00	3.20	0.8	20	22.7	1.96	2.17	25.60	55.51	360	450
1	152.0	0.00	3.20	0.2	20	18.7	2.38	0.00	0.00	0.00	360	450
1	160.0	8.00	3.60	0.8	20	29.8	1.50	1.82	28.80	52.51	360	450
1	160.0	0.00	3.60	0.2	20	20.7	2.15	0.00	0.00	0.00	360	450
1	168.0	8.00	4.00	0.8	20	28.2	1.58	1.76	32.00	56.41	360	450
1	168.0	0.00	4.00	0.2	20	22.9	1.94	0.00	0.00	0.00	360	450
1	176.0	8.00	2.80	0.6	10	56.9	0.41	0.41	22.40	9.08	360	450
1	184.0	8.00	3.60	0.8	15	45.3	0.75	0.66	28.80	18.93	360	450
1	184.0	0.00	3.60	0.2	10	40.2	0.57	0.00	0.00	0.00	360	450
1	192.0	8.00	2.00	0.6	20	40.5	1.11	1.11	16.00	17.71	360	450
	199.0											
										472.00	865.63	

PROI4_11-14-02 (TRIP 4)

PROI4_11-14-02 (TRIP 4)												
Gage = 5.10' at 14:00												
W = 160'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)	Flow	Corr
factor	from IP			depth		(sec)		(ft/s)			Dir	Flow Dir
											(deg)	(deg)
	40.0		0.00									
1	46.4	6.40	0.50	0.6	0	0.0	0.00	0.00	3.20	0.00	360	450
1	52.8	6.40	0.90	0.6	2	16.5	0.15	0.15	5.76	0.85	360	450
1	59.2	6.40	1.20	0.6	10	31.4	0.34	0.34	7.68	2.59	360	450
1	65.6	6.40	1.60	0.6	20	40.8	0.50	0.50	10.24	5.14	360	450
1	72.0	6.40	2.00	0.6	20	24.2	0.82	0.82	12.80	10.55	360	450
1	78.4	6.40	2.30	0.6	20	17.3	1.14	1.14	14.72	16.79	360	450
1	84.8	6.40	2.62	0.6	20	13.4	1.46	1.46	16.77	24.55	360	450
1	91.2	6.40	3.00	0.8	30	22.5	1.31	1.55	19.20	29.85	360	450
1	91.2	0.00	3.00	0.2	30	16.3	1.80	0.00	0.00	0.00	360	450
1	97.6	6.40	3.17	0.8	30	22.5	1.31	1.49	20.29	30.21	360	450
1	97.6	0.00	3.17	0.2	30	17.6	1.67	0.00	0.00	0.00	360	450
1	104.0	6.40	3.45	0.8	30	16.2	1.81	1.84	22.08	40.69	360	450
1	104.0	0.00	3.45	0.2	30	15.6	1.88	0.00	0.00	0.00	360	450
1	110.4	6.40	3.50	0.8	30	16.2	1.81	1.93	22.40	43.32	360	450
1	110.4	0.00	3.50	0.2	30	14.2	2.06	0.00	0.00	0.00	360	450
1	116.8	6.40	3.60	0.8	30	18.4	1.60	1.93	23.04	44.46	360	450
1	116.8	0.00	3.60	0.2	30	12.9	2.26	0.00	0.00	0.00	360	450
1	123.2	6.40	3.62	0.8	30	18.4	1.60	1.97	23.17	45.54	360	450
1	123.2	0.00	3.62	0.2	30	12.5	2.34	0.00	0.00	0.00	360	450
1	129.6	6.40	3.61	0.8	30	17.4	1.69	1.94	23.10	44.85	360	450
1	129.6	0.00	3.61	0.2	30	13.3	2.20	0.00	0.00	0.00	360	450
1	136.0	6.40	3.40	0.8	30	22.3	1.32	1.67	21.76	36.34	360	450
1	136.0	0.00	3.40	0.2	30	14.5	2.02	0.00	0.00	0.00	360	450
1	142.4	6.40	3.20	0.8	30	19.1	1.54	1.73	20.48	35.35	360	450
1	142.4	0.00	3.20	0.2	30	15.3	1.91	0.00	0.00	0.00	360	450
1	148.8	6.40	2.99	0.6	30	17.3	1.70	1.70	19.14	32.45	360	450
1	155.2	6.40	2.68	0.6	30	21.1	1.40	1.40	17.15	23.94	360	450
1	161.6	6.40	2.55	0.6	30	28.0	1.06	1.06	16.32	17.29	360	450
1	168.0	6.40	2.50	0.6	30	36.5	0.82	0.82	16.00	13.12	360	450
1	174.4	6.40	2.35	0.6	20	29.7	0.68	0.68	15.04	10.19	360	450
1	180.8	6.40	1.80	0.6	10	46.8	0.24	0.24	11.52	2.72	360	450
1	187.2	6.40	1.85	0.6			0.11	0.11	11.84	1.30	360	450
1	193.6	6.40	1.34	0.6			0	0.00	8.58	0.00	360	450
	200.0											
										382.27	512.09	

STBI4_9-4-02 (TRIP 1)

STBI4_9-4-02 (TRIP 1)

Gage = 5.64' at 15:45

W = 140'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0.0		0.00									
1	5.6	5.6	1.80	0.6	0	0.0	0.00	0.00	10.08	0.00	360	-270
-0.5	11.2	5.6	2.40	0.6	1	52.0	0.06	0.06	13.44	-0.41	120	-30
1	16.8	5.6	2.00	0.6	10	30.0	0.75	0.75	11.20	8.43	360	-270
1	22.4	5.6	1.00	0.6	10	45.0	0.51	0.51	5.60	2.84	360	-270
1	28.0	5.6	0.80	0.6	0	0.0	0.00	0.00	4.48	0.00	360	-270
1	33.6	5.6	0.80	0.6	0	0.0	0.00	0.00	4.48	0.00	360	-270
1	39.2	5.6	1.70	0.6	56	30.0	4.13	4.13	9.52	39.36	360	-270
1	44.8	5.6	1.50	0.6	60	35.0	3.80	3.80	8.40	31.90	360	-270
1	50.4	5.6	1.50	0.6	55	30.0	4.06	4.06	8.40	34.11	360	-270
1	56.0	5.6	1.40	0.6	41	31.0	2.93	2.93	7.84	23.00	360	-270
1	61.6	5.6	1.30	0.6	49	30.0	3.62	3.62	7.28	26.35	360	-270
1	67.2	5.6	1.20	0.6	47	30.0	3.47	3.47	6.72	23.34	360	-270
0.9848	72.8	5.6	0.90	0.6	41	30.0	3.03	3.03	5.04	15.05	350	-260
1	78.4	5.6	1.30	0.6	50	34.0	3.26	3.26	7.28	23.74	360	-270
1	84.0	5.6	1.30	0.6	30	30.0	2.22	2.22	7.28	16.18	360	-270
1	89.6	5.6	2.70	0.6	39	30.0	2.88	2.88	15.12	43.61	360	-270
1	95.2	5.6	2.90	0.6	29	30.0	2.15	2.15	16.24	34.91	360	-270
1	100.8	5.6	2.50	0.6	17	37.0	1.03	1.03	14.00	14.44	360	-270
1	106.4	5.6	1.50	0.6	25	39.0	1.43	1.43	8.40	12.02	360	-270
1	112.0	5.6	1.50	0.6	15	40.0	0.84	0.84	8.40	7.10	360	-270
1	117.6	5.6	1.10	0.6	11	35.0	0.71	0.71	6.16	4.38	360	-270
1	123.2	5.6	1.20	0.6	7	43.0	0.38	0.38	6.72	2.53	360	-270
1	128.8	5.6	1.10	0.6	8	33.0	0.55	0.55	6.16	3.40	360	-270
1	134.4	5.6	1.10	0.6	1	35.0	0.08	0.08	6.16	0.50	360	-270
	140.0											
										204.40	366.79	

STBI4_9-25-02 (TRIP 2)

STBI4_9-25-02 (TRIP 2)												
Gage = 5.58' at 15:00												
W = 90'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0.0		0.00									
1	3.6	3.6	0.90	0.6	20	12.7	1.54	1.54	3.24	5.00	360	-270
1	7.2	3.6	1.10	0.6	50	23.4	2.08	2.08	3.96	8.25	360	-270
1	10.8	3.6	1.25	0.6	50	23.0	2.12	2.12	4.50	9.53	360	-270
1	14.4	3.6	1.25	0.6	50	18.4	2.64	2.64	4.50	11.88	360	-270
1	18.0	3.6	1.45	0.6	50	16.8	2.89	2.89	5.22	15.08	360	-270
1	21.6	3.6	1.60	0.6	50	18.6	2.61	2.61	5.76	15.04	360	-270
1	25.2	3.6	1.40	0.6	50	19.6	2.48	2.48	5.04	12.50	360	-270
1	28.8	3.6	1.30	0.6	50	21.1	2.31	2.31	4.68	10.79	360	-270
1	32.4	3.6	1.30	0.6	50	17.3	2.81	2.81	4.68	13.13	360	-270
1	36.0	3.6	1.50	0.6	50	15.7	3.09	3.09	5.40	16.68	360	-270
1	39.6	3.6	1.30	0.6	50	15.0	3.23	3.23	4.68	15.12	360	-270
1	43.2	3.6	1.50	0.6	50	13.9	3.48	3.48	5.40	18.81	360	-270
1	46.8	3.6	1.60	0.6	50	18.4	2.64	2.64	5.76	15.20	360	-270
1	50.4	3.6	1.60	0.6	50	20.0	2.43	2.43	5.76	14.00	360	-270
1	54.0	3.6	1.45	0.6	50	20.1	2.42	2.42	5.22	12.63	360	-270
1	57.6	3.6	1.30	0.6	50	19.8	2.46	2.46	4.68	11.49	360	-270
1	61.2	3.6	1.05	0.6	50	26.7	1.83	1.83	3.78	6.91	360	-270
1	64.8	3.6	0.90	0.6	50	34.4	1.43	1.43	3.24	4.62	360	-270
0.9659	68.4	3.6	0.85	0.6	50	54.6	0.91	0.91	3.06	2.69	15	75
0.9659	72.0	3.6	0.60	0.6	30	29.1	1.02	1.02	2.16	2.13	15	75
0.9659	75.6	3.6	0.50	0.6	30	42.0	0.72	0.72	1.80	1.25	15	75
0.9659	79.2	3.6	0.65	0.6	30	32.8	0.91	0.91	2.34	2.05	15	75
0.9659	82.8	3.6	0.65	0.6	30	36.0	0.83	0.83	2.34	1.88	15	75
1	86.4	3.6	0.55	0.6	20	41.0	0.50	0.50	1.98	0.99	360	-270
	90.0											
										99.18	227.65	

STBI4_10-31-02 (TRIP 3)

STBI4_10-31-02 (TRIP 3)												
Gage = 5.91' at 17:00												
W = 110'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	0.0		0.00									
1	4.4	4.4	0.80	0.6	30	48.1	0.63	0.63	3.52	2.22	360	-270
1	8.8	4.4	1.65	0.6	30	19.5	1.51	1.51	7.26	10.95	360	-270
1	13.2	4.4	2.45	0.6	30	12.5	2.34	2.34	10.78	25.17	360	-270
1	17.6	4.4	2.80	0.6	50	19.2	2.53	2.53	12.32	31.18	360	-270
1	22.0	4.4	2.90	0.6	50	17.1	2.84	2.84	12.76	36.21	360	-270
1	26.4	4.4	2.99	0.6	50	18.0	2.70	2.70	13.16	35.49	360	-270
1	30.8	4.4	2.90	0.6	50	18.8	2.58	2.58	12.76	32.97	360	-270
1	35.2	4.4	2.55	0.6	50	18.6	2.61	2.61	11.22	29.30	360	-270
1	39.6	4.4	2.60	0.6	50	14.9	3.25	3.25	11.44	37.21	360	-270
1	44.0	4.4	2.65	0.6	50	17.0	2.85	2.85	11.66	33.28	360	-270
1	48.4	4.4	2.73	0.6	50	16.5	2.94	2.94	12.01	35.32	360	-270
1	52.8	4.4	2.30	0.6	50	21.5	2.26	2.26	10.12	22.91	360	-270
1	57.2	4.4	2.12	0.6	50	24.3	2.01	2.01	9.33	18.71	360	-270
1	61.6	4.4	1.73	0.6	50	26.0	1.88	1.88	7.61	14.29	360	-270
1	66.0	4.4	1.35	0.6	50	25.6	1.91	1.91	5.94	11.32	360	-270
1	70.4	4.4	1.33	0.6	50	28.9	1.69	1.69	5.85	9.90	360	-270
1	74.8	4.4	1.20	0.6	50	27.4	1.78	1.78	5.28	9.41	360	-270
1	79.2	4.4	1.53	0.6	50	40.9	1.20	1.20	6.73	8.11	360	-270
1	83.6	4.4	1.93	0.6	20	26.8	0.75	0.75	8.49	6.35	360	-270
1	88.0	4.4	2.06	0.6	6	100.0	0.09	0.09	9.06	0.80	360	-270
1	92.4	4.4	2.05	0	0	0.0	0.00	0.00	9.02	0.00	360	-270
1	96.8	4.4	0.00	0	0	0.0	0.00	0.00	0.00	0.00	360	-270
1	101.2	4.4	0.00	0	0	0.0	0.00	0.00	0.00	0.00	360	-270
1	105.6	4.4	0.00	0	0	0.0	0.00	0.00	0.00	0.00	360	-270
	110.0											
										196.33	411.11	

STBI4_12-10-02 (TRIP 4)

STBI4_12-10-02 (TRIP 4)												
Gage = 5.50' at 13:00												
W = 87'												
C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	Flow Dir (deg)	Corr Flow Dir (deg)
	15.0		0.00									
1	18.5	3.5	1.00	0.6	30	16.2	1.81	1.81	3.50	6.33	360	-270
1	22.0	3.5	1.23	0.6	30	15.0	1.95	1.95	4.31	8.40	360	-270
1	25.5	3.5	1.35	0.6	40	19.0	2.05	2.05	4.73	9.70	360	-270
1	29.0	3.5	1.35	0.6	40	17.9	2.18	2.18	4.73	10.28	360	-270
1	32.5	3.5	1.25	0.6	40	22.2	1.76	1.76	4.38	7.70	360	-270
1	36.0	3.5	1.20	0.6	40	15.4	2.52	2.52	4.20	10.60	360	-270
1	39.5	3.5	0.89	0.6	40	17.0	2.29	2.29	3.12	7.13	360	-270
1	43.0	3.5	0.95	0.6	40	14.9	2.61	2.61	3.33	8.67	360	-270
1	46.5	3.5	0.95	0.6	40	13.0	2.98	2.98	3.33	9.92	360	-270
1	50.0	3.5	0.90	0.6	40	11.1	3.49	3.49	3.15	10.99	360	-270
1	53.5	3.5	1.50	0.6	40	16.7	2.33	2.33	5.25	12.23	360	-270
1	57.0	3.5	1.70	0.6	40	11.3	3.43	3.43	5.95	20.40	360	-270
1	60.5	3.5	1.70	0.6	40	11.9	3.26	3.26	5.95	19.38	360	-270
1	64.0	3.5	1.60	0.6	40	13.5	2.88	2.88	5.60	16.10	360	-270
1	67.5	3.5	1.52	0.6	40	15.0	2.59	2.59	5.32	13.78	360	-270
1	71.0	3.5	1.36	0.6	40	16.1	2.42	2.42	4.76	11.50	360	-270
1	74.5	3.5	1.02	0.6	20	18.4	1.07	1.07	3.57	3.84	360	-270
1	78.0	3.5	0.70	0.6	5	16.1	0.33	0.33	2.45	0.81	360	-270
1	81.5	3.5	0.35	0.6	20	23.8	0.84	0.84	1.23	1.03	360	-270
1	85.0	3.5	0.20	0.6	20	21.7	0.92	0.92	0.70	0.64	360	-270
1	88.5	3.5	0.20	0.6	15	18.9	0.79	0.79	0.70	0.56	360	-270
1	92.0	3.5	0.40	0.6	40	34.5	1.14	1.14	1.40	1.60	360	-270
1	95.5	3.5	0.40	0.6	40	33.0	1.19	1.19	1.40	1.67	360	-270
1	99.0	3.5	0.25	0.6	15	20.9	0.72	0.72	0.88	0.63	360	-270
	102.0											
									83.90	193.92		

TAMI4_9-4-02 (TRIP 1)

TAMI4_9-4-02 (TRIP 1)												
Gage = 9.23' at 9:00												
W = 183'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1	7.3	7.3	0.60		0		0.00	0.00	4.38	0.00	360	-270
1	14.6	7.3	0.40		0		0.00	0.00	2.92	0.00	360	-270
1	21.9	7.3	0.60		0		0.00	0.00	4.38	0.00	360	-270
1	29.2	7.3	0.80		0		0.00	0.00	5.84	0.00	360	-270
1	36.5	7.3	0.90	0.6	25	45	1.24	1.24	6.57	8.17	360	-270
1	43.8	7.3	1.00	0.6	30	40	1.67	1.67	7.30	12.20	360	-270
1	51.1	7.3	0.90	0.6	20	31	1.44	1.44	6.57	9.46	360	-270
1	58.4	7.3	0.90	0.6	20	28	1.59	1.59	6.57	10.47	360	-270
1	65.7	7.3	1.20	0.6	20	27	1.65	1.65	8.76	14.47	360	-270
1	73.0	7.3	0.60		0	0	0.00	0.00	4.38	0.00	360	-270
1	80.3	7.3	0.60		0	0	0.00	0.00	4.38	0.00	360	-270
1	87.6	7.3	1.80	0.6	30	43	1.56	1.56	13.14	20.45	360	-270
1	94.9	7.3	2.60	0.6	30	32	2.09	2.09	18.98	39.58	360	-270
1	102.2	7.3	3.20	0.8	30	32	2.09	2.33	23.36	54.51	360	-270
1	102.2	0.0	3.20	0.2	50	43	2.58	0.00	0.00	0.00	360	-270
1	109.5	7.3	3.20	0.8	30	31	2.15	2.37	23.36	55.39	360	-270
1	109.5	0.0	3.20	0.2	35	30	2.59	0.00	0.00	0.00	360	-270
1	116.8	7.3	2.80	0.6	40	38	2.34	2.34	20.44	47.81	360	-270
1	124.1	7.3	3.70	0.8	30	41	1.63	1.99	27.01	53.86	360	-270
1	124.1	0.0	3.70	0.2	35	33	2.36	0.00	0.00	0.00	360	-270
1	131.4	7.3	3.40	0.8	30	33	2.02	2.29	24.82	56.90	360	-270
1	131.4	0.0	3.40	0.2	30	26	2.56	0.00	0.00	0.00	360	-270
1	138.7	7.3	3.80	0.8	30	34	1.96	2.32	27.74	64.40	360	-270
1	138.7	0.0	3.80	0.2	35	29	2.68	0.00	0.00	0.00	360	-270
1	146.0	7.3	4.20	0.8	30	36	1.86	2.27	30.66	69.69	360	-270
1	146.0	0.0	4.20	0.2	40	33	2.69	0.00	0.00	0.00	360	-270
1	153.3	7.3	4.00	0.8	40	41	2.17	2.10	29.20	61.20	360	-270
1	153.3	0.0	4.00	0.2	30	33	2.02	0.00	0.00	0.00	360	-270
1	160.6	7.3	4.20	0.8	20	33	1.35	1.20	30.66	36.76	360	-270
1	160.6	0.0	4.20	0.2	20	43	1.04	0.00	0.00	0.00	360	-270
1	167.9	7.3	4.30	0.8	2	55	0.10	0.16	31.39	5.07	360	-270
1	167.9	0.0	4.30	0.2	3	32	0.22	0.00	0.00	0.00	360	-270
-0.5	175.2	7.3	2.50	0.6	9	53	0.39	0.39	18.25	-3.58	120	-30
	183.0											
									381.06	616.80		

TAMI4_9-25-02 (TRIP 2)

TAMI4_9-25-02 (TRIP 2)													
Gage = 8.91' at 08:15													
W = 184'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	
factor	from IP			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir (deg)	
	0.0												
1.000	7.4	7.4	0.40	0.6	1	21.0	0.08	0.08	2.96	0.23	360	-270	
1.000	14.8	7.4	0.30	0.6	4	24.0	0.19	0.19	2.22	0.42	360	-270	
1.000	22.2	7.4	0.35	0.6	20	30.3	0.66	0.66	2.59	1.72	360	-270	
1.000	29.6	7.4	0.70	0.6	20	22.8	0.87	0.87	5.18	4.52	360	-270	
1.000	37.0	7.4	0.90	0.6	20	20.8	0.95	0.95	6.66	6.35	360	-270	
1.000	44.4	7.4	0.85	0.6	20	19.3	1.03	1.03	6.29	6.45	360	-270	
1.000	51.8	7.4	0.80	0.6	20	23.0	0.87	0.87	5.92	5.13	360	-270	
1.000	59.2	7.4	0.65	0.6	20	22.3	0.89	0.89	4.81	4.29	360	-270	
1.000	66.6	7.4	0.70	0.6	20	20.9	0.95	0.95	5.18	4.92	360	-270	
1.000	74.0	7.4	0.35	0.6	20	24.3	0.82	0.82	2.59	2.13	360	-270	
0.707	81.4	7.4	0.20	0.6	20	19.6	1.01	1.01	1.48	1.06	45	45	
1.000	88.8	7.4	2.10	0.6	20	33.5	1.33	1.33	15.54	20.74	360	-270	
1.000	96.2	7.4	2.90	0.6	20	21.2	2.10	2.10	21.46	45.03	360	-270	
0.985	103.6	7.4	3.40	0.8	20	21.6	2.06	2.24	25.16	55.43	350	-260	
0.985	103.6	0.0	3.40	0.2	20	18.4	2.41	0.00	0.00	0.00	350	-260	
1.000	111.0	7.4	3.20	0.8	20	23.6	1.89	2.09	23.68	49.61	360	-270	
1.000	111.0	0.0	3.20	0.2	20	19.3	2.30	0.00	0.00	0.00	360	-270	
1.000	118.4	7.4	3.10	0.8	20	23.5	1.89	2.13	22.94	48.84	360	-270	
1.000	118.4	0.0	3.10	0.2	20	18.8	2.36	0.00	0.00	0.00	360	-270	
1.000	125.8	7.4	3.60	0.8	20	22.6	1.97	2.09	26.64	55.55	360	-270	
0.985	125.8	0.0	3.60	0.2	20	20.2	2.20	0.00	0.00	0.00	350	-260	
0.985	133.2	7.4	3.90	0.8	20	25.7	1.73	2.02	28.86	57.54	350	-260	
0.985	133.2	0.0	3.90	0.2	20	19.2	2.31	0.00	0.00	0.00	350	-260	
0.985	140.6	7.4	4.10	0.8	20	24.4	1.83	2.13	30.34	63.54	350	-260	
0.985	140.6	0.0	4.10	0.2	20	18.3	2.43	0.00	0.00	0.00	350	-260	
0.985	148.0	7.4	4.30	0.8	20	21.1	2.11	2.18	31.82	68.39	350	-260	
0.985	148.0	0.0	4.30	0.2	20	19.7	2.26	0.00	0.00	0.00	350	-260	
1.000	155.4	7.4	4.00	0.8	20	26.3	1.69	1.52	29.60	45.07	360	-270	
1.000	155.4	0.0	4.00	0.2	20	33.1	1.35	0.00	0.00	0.00	360	-270	
0.906	162.8	7.4	4.00	0.8	20	65.2	0.69	0.54	29.60	14.48	25	65	
0.906	162.8	0.0	4.00	0.2	14	84.0	0.39	0.00	0.00	0.00	25	65	
-0.766	170.2	7.4	4.20	0.8	4	80.0	0.13	0.10	31.08	-2.33	140	-50	
-0.766	170.2	0.0	4.20	0.2	1	44.5	0.07	0.00	0.00	0.00	140	-50	
-1.000	177.6	7.4	2.30	0.6	20	85.6	0.53	0.53	17.02	-9.07	180	-90	
	184.0												
										379.62	550.03		
Note: Pigmy for W = 0 - 81.4' and AA type for W = 88.8' - 177.6'													

TAMI4_11-1-02 (TRIP 3)

TAMI4_11-1-02 (TRIP 3)													
Gage = 9.54' at 10:25													
W = 189'													
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr	Flow Dir
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)		(deg)
	IP												
	0.0												
0.985	7.5	7.5	1.0	0.6	10	22.1	1.02	1.02	7.50	7.50	350	-260	
0.985	15.0	7.5	1.2	0.6	10	18.9	1.18	1.18	9.00	10.50	350	-260	
0.985	22.5	7.5	1.4	0.6	20	42.8	1.05	1.05	10.50	10.84	350	-260	
0.985	30.0	7.5	1.5	0.6	20	36.8	1.22	1.22	11.25	13.48	350	-260	
0.985	37.5	7.5	1.7	0.6	20	29.9	1.49	1.49	12.75	18.75	350	-260	
0.985	45.0	7.5	1.7	0.6	20	29.3	1.52	1.52	12.75	19.12	350	-260	
0.985	52.5	7.5	1.8	0.6	20	30.4	1.47	1.47	13.50	19.53	350	-260	
0.985	60.0	7.5	1.6	0.6	20	24.7	1.80	1.80	12.00	21.31	350	-260	
0.985	67.5	7.5	1.6	0.6	20	27.9	1.60	1.60	12.00	18.89	350	-260	
0.985	75.0	7.5	1.5	0.6	20	30.2	1.48	1.48	11.25	16.38	350	-260	
0.985	82.5	7.5	1.4	0.6	20	30.9	1.45	1.45	10.50	14.94	350	-260	
0.985	90.0	7.5	2.5	0.6	20	30.4	1.47	1.47	18.75	27.12	350	-260	
0.985	97.5	7.5	3.0	0.6	20	21.8	2.04	2.04	22.50	45.22	350	-260	
0.996	105.0	7.5	3.7	0.8	20	20.7	2.15	2.35	27.75	64.98	355	-265	
0.996	105.0	0.0	3.7	0.2	20	17.4	2.55	0.00	0.00	0.00	355	-265	
0.996	112.5	7.5	3.4	0.8	20	25.3	1.76	2.08	25.50	52.71	355	-265	
0.996	112.5	0.0	3.4	0.2	20	18.6	2.39	0.00	0.00	0.00	355	-265	
0.985	120.0	7.5	3.5	0.8	20	18.8	2.36	2.52	26.25	65.12	350	-260	
0.985	120.0	0.0	3.5	0.2	20	16.6	2.67	0.00	0.00	0.00	350	-260	
0.966	127.5	7.5	4.6	0.8	20	23.1	1.93	2.17	34.50	72.34	345	-255	
0.966	127.5	0.0	4.6	0.2	20	18.4	2.41	0.00	0.00	0.00	345	-255	
0.966	135.0	7.5	4.4	0.8	20	24.2	1.84	2.22	33.00	70.72	345	-255	
0.966	135.0	0.0	4.4	0.2	20	17.1	2.60	0.00	0.00	0.00	345	-255	
0.966	142.5	7.5	4.3	0.8	20	22.7	1.96	2.28	32.25	70.99	345	-255	
0.966	142.5	0.0	4.3	0.2	20	17.1	2.60	0.00	0.00	0.00	345	-255	
0.966	150.0	7.5	4.4	0.8	20	22.6	1.97	2.21	33.00	70.51	345	-255	
0.966	150.0	0.0	4.4	0.2	20	18.1	2.45	0.00	0.00	0.00	345	-255	
0.985	157.5	7.5	4.0	0.8	20	23.6	1.89	2.08	30.00	61.54	350	-260	
0.985	157.5	0.0	4.0	0.2	20	19.5	2.28	0.00	0.00	0.00	350	-260	
0.985	165.0	7.5	4.0	0.8	20	31.9	1.40	1.33	30.00	39.25	350	-260	
0.985	165.0	0.0	4.0	0.2	20	35.6	1.26	0.00	0.00	0.00	350	-260	
0.985	172.5	7.5	4.2	0.8	20	56.1	0.80	0.57	31.50	17.81	350	-260	
0.985	172.5	0.0	4.2	0.2	5	33.8	0.34	0.00	0.00	0.00	350	-260	
0.342	180.0	7.5	2.5	0.6	5	59.0	0.20	0.20	18.75	1.31	70	20	
	189.0												
486.75										830.87			

TAMI4_11-15-02 (TRIP 4)

TAMI4_11-15-02 (TRIP 4)												
Gage = 9.07' at 14:00												
W = 185'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
IP												(deg)
	0.0											
1.000	7.4	7.4	0.52	0.6	20	54.8	0.38	0.38	3.85	1.47	360	-270
1.000	14.8	7.4	0.52	0.6	20	47.3	0.44	0.44	3.85	1.68	360	-270
1.000	22.2	7.4	0.70	0.6	20	37.0	0.55	0.55	5.18	2.85	360	-270
1.000	29.6	7.4	0.81	0.6	20	34.3	0.59	0.59	5.99	3.54	360	-270
1.000	37.0	7.4	0.98	0.6	20	29.9	0.67	0.67	7.25	4.88	360	-270
1.000	44.4	7.4	1.12	0.6	20	20.9	0.95	0.95	8.29	7.87	360	-270
1.000	51.8	7.4	1.20	0.6	20	20.6	0.96	0.96	8.88	8.55	360	-270
1.000	59.2	7.4	0.90	0.6	20	16.8	1.17	1.17	6.66	7.82	360	-270
1.000	66.6	7.4	0.85	0.6	20	18.1	1.09	1.09	6.29	6.87	360	-270
1.000	74.0	7.4	0.75	0.6	20	18.2	1.09	1.09	5.55	6.03	360	-270
1.000	81.4	7.4	0.55	0.6	20	18.0	1.10	1.10	4.07	4.47	360	-270
1.000	88.8	7.4	2.20	0.6	30	68.3	0.99	0.99	16.28	16.06	360	-270
0.996	96.2	7.4	2.80	0.6	30	34.6	1.93	1.93	20.72	39.83	355	-265
0.996	103.6	7.4	3.80	0.8	30	36.4	1.84	2.04	28.12	57.05	355	-265
0.996	103.6	0.0	3.80	0.2	30	29.8	2.24	0.00	0.00	0.00	355	-265
0.996	111.0	7.4	3.80	0.8	30	37.9	1.76	2.03	28.12	56.90	355	-265
0.996	111.0	0.0	3.80	0.2	30	29.0	2.30	0.00	0.00	0.00	355	-265
0.996	118.4	7.4	3.70	0.8	30	34.8	1.92	2.12	27.38	57.74	355	-265
0.996	118.4	0.0	3.70	0.2	30	28.8	2.31	0.00	0.00	0.00	355	-265
0.985	125.8	7.4	3.80	0.8	30	35.6	1.88	2.13	28.12	58.94	350	-260
0.985	125.8	0.0	3.80	0.2	30	28.0	2.38	0.00	0.00	0.00	350	-260
0.985	133.2	7.4	3.80	0.8	30	34.2	1.95	2.25	28.12	62.37	350	-260
0.985	133.2	0.0	3.80	0.2	30	26.1	2.55	0.00	0.00	0.00	350	-260
0.985	140.6	7.4	4.10	0.8	30	32.8	2.03	2.31	30.34	69.12	350	-260
0.985	140.6	0.0	4.10	0.2	30	25.7	2.59	0.00	0.00	0.00	350	-260
0.996	148.0	7.4	4.50	0.8	30	35.0	1.91	2.16	33.30	71.56	355	-265
0.996	148.0	0.0	4.50	0.2	30	27.7	2.41	0.00	0.00	0.00	355	-265
0.996	155.4	7.4	3.90	0.8	30	35.7	1.87	1.80	28.86	51.79	355	-265
0.996	155.4	0.0	3.90	0.2	30	38.6	1.73	0.00	0.00	0.00	355	-265
0.999	162.8	7.4	3.50	0.8	20	37.1	1.21	1.09	25.90	28.20	358	-268
0.996	162.8	0.0	3.50	0.2	20	46.2	0.97	0.00	0.00	0.00	355	-265
0.985	170.2	7.4	3.90	0.8	10	64.8	0.36	0.29	28.86	8.30	350	-260
0.985	170.2	0.0	3.90	0.2	5	53.0	0.23	0.00	0.00	0.00	350	-260
-1.000	177.6	7.4	2.90	0.6	10	61.0	0.38	0.38	21.46	-8.14	180	-90
	185.0											
									411.44	625.75		
Note: Pigmy for W = 0 - 81.4' and AA type for W = 88.8' - 177.6'												

TOLI4_9-4-02 (TRIP 1)

TOLI4_9-4-02 (TRIP 1)										
Gage = 4.17' at 11:00										
W = 45.2'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	1.8	1.8	0.15		0		0.00	0.00	0.27	0.00
1	3.6	1.8	0.15	0.6	10	37	0.29	0.29	0.27	0.08
1	5.4	1.8	0.15	0.6	20	42	0.49	0.49	0.27	0.13
1	7.2	1.8	0.15	0.6	25	38	0.66	0.66	0.27	0.18
1	9.0	1.8	0.30	0.6	25	32	0.78	0.78	0.54	0.42
1	10.8	1.8	0.25	0.6	25	31	0.81	0.81	0.45	0.36
1	12.6	1.8	0.33	0.6	25	32	0.78	0.78	0.59	0.46
1	14.4	1.8	0.37	0.6	15	39	0.40	0.40	0.67	0.27
1	16.2	1.8	0.45	0.6	25	33	0.76	0.76	0.81	0.61
1	18.0	1.8	0.51	0.6	20	31	0.65	0.65	0.92	0.60
1	19.8	1.8	0.55	0.6	20	26	0.77	0.77	0.99	0.76
1	21.6	1.8	0.54	0.6	30	40	0.75	0.75	0.97	0.73
1	23.4	1.8	0.48	0.6	25	31	0.81	0.81	0.86	0.70
1	25.2	1.8	0.63	0.6	30	38	0.79	0.79	1.13	0.89
1	27.0	1.8	0.58	0.6	20	36	0.56	0.56	1.04	0.59
1	28.8	1.8	0.38	0.6	25	33	0.76	0.76	0.68	0.52
1	30.6	1.8	0.35	0.6	20	30	0.67	0.67	0.63	0.42
1	32.4	1.8	0.34	0.6	20	26	0.77	0.77	0.61	0.47
1	34.2	1.8	0.38	0.6	25	34	0.74	0.74	0.68	0.50
1	36.0	1.8	0.39	0.6	25	36	0.70	0.70	0.70	0.49
1	37.8	1.8	0.41	0.6	25	39	0.65	0.65	0.74	0.48
1	39.6	1.8	0.43	0.6	20	26	0.77	0.77	0.77	0.60
1	41.4	1.8	0.38	0.6	25	32	0.78	0.78	0.68	0.53
1	43.2	1.8	0.42	0.6	25	38	0.66	0.66	0.76	0.50
	45.2									
									16.33	11.30

TOLI4_9-25-02 (TRIP 2)

TOLI4_9-25-02 (TRIP 2)										
Gage = 4.39' at 11:00										
W = 48.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	2.0	2	0.22	0.6	0		0.00	0.00	0.44	0.00
1	4.0	2	0.35	0.6	0		0.00	0.00	0.70	0.00
1	6.0	2	0.37	0.6	10	58.9	0.19	0.19	0.74	0.14
1	8.0	2	0.41	0.6	20	76.9	0.28	0.28	0.82	0.23
1	10.0	2	0.43	0.6	20	68.7	0.31	0.31	0.86	0.27
1	12.0	2	0.48	0.6	20	67.7	0.31	0.31	0.96	0.30
1	14.0	2	0.53	0.6	10	35.7	0.30	0.30	1.06	0.32
1	16.0	2	0.56	0.6	10	41.1	0.26	0.26	1.12	0.30
1	18.0	2	0.48	0.6	10	36.4	0.29	0.29	0.96	0.28
1	20.0	2	0.61	0.6	10	45.7	0.24	0.24	1.22	0.29
1	22.0	2	0.62	0.6	10	48.2	0.23	0.23	1.24	0.29
1	24.0	2	0.71	0.6	10	34.0	0.31	0.31	1.42	0.44
1	26.0	2	0.70	0.6	10	31.7	0.33	0.33	1.40	0.47
1	28.0	2	0.59	0.6	10	26.8	0.39	0.39	1.18	0.46
1	30.0	2	0.65	0.6	10	25.6	0.41	0.41	1.30	0.53
1	32.0	2	0.87	0.6	10	21.4	0.48	0.48	1.74	0.83
1	34.0	2	0.53	0.6	10	18.8	0.54	0.54	1.06	0.57
1	36.0	2	0.53	0.6	10	19.6	0.52	0.52	1.06	0.55
1	38.0	2	0.51	0.6	10	20.9	0.49	0.49	1.02	0.50
1	40.0	2	0.53	0.6	10	24.2	0.43	0.43	1.06	0.45
1	42.0	2	0.60	0.6	10	30.5	0.35	0.35	1.20	0.41
1	44.0	2	0.92	0.6	10	28.9	0.36	0.36	1.84	0.67
1	46.0	2	0.57	0.6	10	56.4	0.20	0.20	1.14	0.23
	48.0									
									25.54	8.55

TOLI4_4-17-03 (TRIP 3)

TOLI4_4-17-03 (TRIP 3)										
Gage = 4.21' at 10:15										
W = 47.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	1.9	1.9	0.23	0.6	4'	10 sec	0.32	0.32	0.44	0.14
1	3.8	1.9	0.30	0.6	2.7'	10 sec	0.22	0.22	0.57	0.13
1	5.7	1.9	0.32	0.6	4'	7 sec	0.46	0.46	0.61	0.28
1	7.6	1.9	0.34	0.6	13	40.1	0.34	0.34	0.65	0.22
1	9.5	1.9	0.31	0.6	16	42.9	0.39	0.39	0.59	0.23
1	11.4	1.9	0.36	0.6	17	40.6	0.43	0.43	0.68	0.30
1	13.3	1.9	0.28	0.6	26	40.9	0.64	0.64	0.53	0.34
1	15.2	1.9	0.35	0.6	15	41.0	0.38	0.38	0.67	0.25
1	17.1	1.9	0.35	0.6	14	41.4	0.36	0.36	0.66	0.24
1	19.0	1.9	0.33	0.6	16	42.0	0.40	0.40	0.63	0.25
1	20.9	1.9	0.36	0.6	10	42.6	0.26	0.26	0.68	0.18
1	22.8	1.9	0.50	0.6	15	42.2	0.37	0.37	0.95	0.35
1	24.7	1.9	0.40	0.6	16	42.1	0.40	0.40	0.76	0.30
1	26.6	1.9	0.37	0.6	27	41.2	0.66	0.66	0.70	0.46
1	28.5	1.9	0.55	0.6	31	41.2	0.75	0.75	1.05	0.79
1	30.4	1.9	0.53	0.6	40	40.9	0.97	0.97	1.01	0.98
1	32.3	1.9	0.52	0.6	44	40.4	1.08	1.08	0.99	1.06
1	34.2	1.9	0.54	0.6	47	40.0	1.16	1.16	1.03	1.19
1	36.1	1.9	0.39	0.6	41	40.9	0.99	0.99	0.74	0.74
1	38.0	1.9	0.48	0.6	35	40.0	0.87	0.87	0.91	0.79
1	39.9	1.9	0.37	0.6	33	41.0	0.80	0.80	0.70	0.56
1	41.8	1.9	0.31	0.6	37	41.0	0.90	0.90	0.59	0.53
1	43.7	1.9	0.40	0.6	27	40.8	0.67	0.67	0.76	0.51
1	45.6	1.4	0.46	0.6	12	42.9	0.30	0.30	0.64	0.19
	47.0									
									17.54	11.01

TOLI4_4-18-03 (TRIP 4)

TOLI4_4-18-03 (TRIP 4)										
Gage = 4.21' at 15:00										
W = 38.0'										
C	Dist from	w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
factor	IP					(sec)		(ft/s)		
	0.0		0.00							
1	1.5	1.5	0.20	0.6	2.9'	10 sec	0.23	0.23	0.30	0.07
1	3.0	1.5	0.23	0.6	4.0'	7 sec	0.46	0.46	0.35	0.16
1	4.5	1.5	0.20	0.6	20	71.1	0.30	0.30	0.30	0.09
1	6.0	1.5	0.15	0.6	20	39.4	0.52	0.52	0.23	0.12
1	7.5	1.5	0.20	0.6	20	33.9	0.60	0.60	0.30	0.18
1	9.0	1.5	0.21	0.6	20	35.7	0.57	0.57	0.32	0.18
1	10.5	1.5	0.25	0.6	20	26.6	0.75	0.75	0.38	0.28
1	12.0	1.5	0.30	0.6	20	27.3	0.73	0.73	0.45	0.33
1	13.5	1.5	0.29	0.6	20	46.7	0.44	0.44	0.44	0.19
1	15.0	1.5	0.29	0.6	20	26.9	0.74	0.74	0.44	0.32
1	16.5	1.5	0.31	0.6	20	25.7	0.78	0.78	0.47	0.36
1	18.0	1.5	0.34	0.6	20	23.3	0.86	0.86	0.51	0.44
1	19.5	1.5	0.37	0.6	20	25.4	0.79	0.79	0.56	0.44
1	21.0	1.5	0.41	0.6	20	31.8	0.63	0.63	0.62	0.39
1	22.5	1.5	0.38	0.6	20	31.0	0.65	0.65	0.57	0.37
1	24.0	1.5	0.40	0.6	20	19.0	1.04	1.04	0.60	0.62
1	25.5	1.5	0.43	0.6	20	24.8	0.81	0.81	0.65	0.52
1	27.0	1.5	0.45	0.6	20	20.8	0.95	0.95	0.68	0.64
1	28.5	1.5	0.50	0.6	20	21.0	0.95	0.95	0.75	0.71
1	30.0	1.5	0.48	0.6	20	21.9	0.91	0.91	0.72	0.65
1	31.5	1.5	0.46	0.6	20	31.4	0.64	0.64	0.69	0.44
1	33.0	1.5	0.52	0.6	20	20.0	0.99	0.99	0.78	0.77
1	34.5	1.5	0.60	0.6	20	17.7	1.12	1.12	0.90	1.00
1	36.0	2.0	0.60	0.6	20	27.2	0.74	0.74	1.20	0.88
	38.0									
									13.16	10.17

WDM5_9-6-02 (TRIP 1)

WDM5_9-6-02 (TRIP 1)												
Gage = 11.78' at 9:30												
W = 75'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
0.940	3.0	3.0	1.8	0.6	3	38.0	0.19	0.19	5.40	0.97	340	-250
0.940	6.0	3.0	3.3	0.8	6	99.0	0.15	0.20	9.90	1.88	340	-250
0.940	6.0	0.0	3.3	0.2	5	47.0	0.25	0.00	0.00	0.00	340	-250
0.940	9.0	3.0	5.2	0.8	2	44.0	0.12	0.12	15.60	1.74	340	-250
0.940	9.0	0.0	5.2	0.2	3	65.0	0.12	0.00	0.00	0.00	340	-250
0.940	12.0	3.0	6.2	0.8	10	50.0	0.46	0.31	18.60	5.47	340	-250
0.940	12.0	0.0	6.2	0.2	5	74.0	0.17	0.00	0.00	0.00	340	-250
0.940	15.0	3.0	7.7	0.8	5	33.0	0.35	0.37	23.10	8.01	340	-250
0.940	15.0	0.0	7.7	0.2	10	60.0	0.39	0.00	0.00	0.00	340	-250
0.940	18.0	3.0	8.8	0.8	7	46.0	0.35	0.33	26.40	8.15	340	-250
0.940	18.0	0.0	8.8	0.2	7	54.0	0.30	0.00	0.00	0.00	340	-250
0.940	21.0	3.0	9.2	0.8	6	52.0	0.27	0.34	27.60	8.77	340	-250
0.940	21.0	0.0	9.2	0.2	7	40.0	0.40	0.00	0.00	0.00	340	-250
0.940	24.0	3.0	10.8	0.8	5	36.0	0.32	0.32	32.40	9.73	340	-250
0.940	24.0	0.0	10.8	0.2	7	52.0	0.31	0.00	0.00	0.00	340	-250
0.940	27.0	3.0	12.0	0.8	6	40.0	0.35	0.35	36.00	11.80	340	-250
0.940	27.0	0.0	12.0	0.2	6	40.0	0.35	0.00	0.00	0.00	340	-250
0.940	30.0	3.0	12.0	0.8	6	42.0	0.33	0.34	36.00	11.53	340	-250
0.940	30.0	0.0	12.0	0.2	6	40.0	0.35	0.00	0.00	0.00	340	-250
0.940	33.0	3.0	11.3	0.8	5	45.0	0.26	0.25	33.90	7.87	340	-250
0.940	33.0	0.0	11.3	0.2	6	62.0	0.23	0.00	0.00	0.00	340	-250
0.940	36.0	3.0	11.0	0.8	10	70.0	0.33	0.27	33.00	8.42	340	-250
0.940	36.0	0.0	11.0	0.2	4	46.0	0.21	0.00	0.00	0.00	340	-250
0.940	39.0	3.0	10.6	0.8	5	51.0	0.23	0.19	31.80	5.67	340	-250
0.940	39.0	0.0	10.6	0.2	3	52.0	0.15	0.00	0.00	0.00	340	-250
0.940	42.0	3.0	10.6	0.8	4.0	60.0	0.17	0.16	31.80	4.75	340	-250
0.940	42.0	0.0	10.6	0.2	3.0	49.0	0.15	0.00	0.00	0.00	340	-250
0.940	45.0	3.0	9.0	0.8	2.0	64.0	0.09	0.12	27.00	3.15	340	-250
0.940	45.0	0.0	9.0	0.2	5.0	77.0	0.16	0.00	0.00	0.00	340	-250
1.000	48.0	3.0	9.0	0.8	0.0	0.0	0.00	0.00	27.00	0.00	360	-270
1.000	48.0	0.0	9.0	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	51.0	3.0	8.5	0.8	0.0	0.0	0.00	0.00	25.50	0.00	360	-270
1.000	51.0	0.0	8.5	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	54.0	3.0	7.0	0.8	0.0	0.0	0.00	0.00	21.00	0.00	360	-270
1.000	54.0	0.0	7.0	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
0.000	57.0	3.0	5.5	0.8	2.0	75.0	0.08	0.04	16.50	0.00	90	0
1.000	57.0	0.0	5.5	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
0.000	60.0	3.0	4.5	0.8	2.0	60.0	0.09	0.05	13.50	0.00	90	0
1.000	60.0	0.0	4.5	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
-0.342	63.0	3.0	4.0	0.8	2.0	45.0	0.12	0.10	12.00	-0.39	110	-20
-0.342	63.0	0.0	4.0	0.2	2.0	76.0	0.08	0.00	0.00	0.00	110	-20
1.000	66.0	3.0	3.5	0.8	0.0	0.0	0.00	0.06	10.50	0.60	360	-270
-0.707	66.0	0.0	3.5	0.2	2.0	46.0	0.11	0.00	0.00	0.00	135	-45
1.000	69.0	3.0	2.5	0.6	1.0	53.0	0.06	0.06	7.50	0.45	360	-270
1.000	72.0	3.0	1.6	0.6	0.0	0.0	0.00	0.00	4.80	0.00	360	-270
	75.0											
										526.80	98.56	

WDM5_9-27-02 (TRIP 2)

WDM5_9-27-02 (TRIP 2)

Gage = 11.29' at 11:30

W = 74'

C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	3.0	3.0	1.3	0.6	0	0.0	0.00	0.00	3.90	0.00	360	-270
1.000	6.0	3.0	3.1	0.8	0	0.0	0.00	0.00	9.30	0.00	360	-270
1.000	6.0	0.0	3.1	0.2	0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	9.0	3.0	4.6	0.8	0	0.0	0.00	0.00	13.80	0.00	360	-270
1.000	9.0	0.0	4.6	0.2	0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	12.0	3.0	5.6	0.8	0	0.0	0.00	0.00	16.80	0.00	360	-270
1.000	12.0	0.0	5.6	0.2	0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	15.0	3.0	7.0	0.8	0	0.0	0.00	0.00	21.00	0.00	360	-270
1.000	15.0	0.0	7.0	0.2	0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	18.0	3.0	8.2	0.8	2	56.0	0.10	0.06	24.60	1.41	360	-270
1.000	18.0	0.0	8.2	0.2	0	54.0	0.02	0.00	0.00	0.00	360	-270
1.000	21.0	3.0	8.9	0.8	3	94.0	0.09	0.05	26.70	1.42	360	-270
1.000	21.0	0.0	8.9	0.2	0	40.0	0.02	0.00	0.00	0.00	360	-270
1.000	24.0	3.0	10.5	0.8	3	101.0	0.08	0.07	31.50	2.25	360	-270
1.000	24.0	0.0	10.5	0.2	3	159.0	0.06	0.00	0.00	0.00	360	-270
1.000	27.0	3.0	11.1	0.8	3	98.0	0.09	0.04	33.30	1.42	360	-270
1.000	27.0	0.0	11.1	0.2	0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	30.0	3.0	10.4	0.8	3	84.0	0.10	0.05	31.20	1.51	360	-270
1.000	30.0	0.0	10.4	0.2	0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	33.0	3.0	10.0	0.8	3	122.0	0.07	0.04	30.00	1.08	360	-270
1.000	33.0	0.0	10.0	0.2	3	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	36.0	3.0	9.6	0.8	3	103.0	0.08	0.04	28.80	1.18	360	-270
1.000	36.0	0.0	9.6	0.2	0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	39.0	3.0	9.6	0.8	3	72.0	0.11	0.05	28.80	1.58	360	-270
1.000	39.0	0.0	9.6	0.2	0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	42.0	3.0	9.2	0.8	2.0	118.0	0.06	0.03	27.60	0.76	360	-270
1.000	42.0	0.0	9.2	0.2	0.0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	45.0	3.0	9.1	0.8	3.0	310.0	0.04	0.02	27.30	0.54	360	-270
1.000	45.0	0.0	9.1	0.2	0.0	0.0	0.0	0.00	0.00	0.00	360	-270
1.000	48.0	3.0	8.1	0.8	3.0	65.0	0.00	0.00	24.30	0.00	360	-270
1.000	48.0	0.0	8.1	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	51.0	3.0	7.1	0.8	3.0	119.0	0.00	0.00	21.30	0.00	360	-270
1.000	51.0	0.0	7.1	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	54.0	3.0	6.0	0.8	0.0	0.0	0.00	0.00	18.00	0.00	360	-270
1.000	54.0	0.0	6.0	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	57.0	3.0	5.0	0.8	0.0	0.0	0.00	0.00	15.00	0.00	360	-270
1.000	57.0	0.0	5.0	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	60.0	3.0	4.0	0.8	0.0	0.0	0.00	0.00	12.00	0.00	360	-270
1.000	60.0	0.0	4.0	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	63.0	3.0	3.5	0.8	0.0	0.0	0.00	0.00	10.50	0.00	360	-270
1.000	63.0	0.0	3.5	0.2	0.0	0.0	0.00	0.00	0.00	0.00	360	-270
1.000	66.0	3.0	2.9	0.6	0.0	0.0	0.00	0.00	8.70	0.00	360	-270
1.000	69.0	3.0	1.8	0.6	0.0	0.0	0.00	0.00	5.40	0.00	360	-270
1.000	72.0	3.0	0.9	0.6	0.0	0.0	0.00	0.00	2.70	0.00	360	-270
	74.0											
									472.50	13.17		

WDM5_10-29-02 (TRIP 3)

WDM5_10-29-02 (TRIP 3)												
Gage = 12.32' at 17:15												
W = 75'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	5.0	5.0	2.1	0.6	8	47.5	0.39	0.39	10.50	4.09	360	-270
1.000	8.0	3.0	4.2	0.8	3	50.0	0.15	0.11	12.60	1.34	360	-270
1.000	8.0	0.0	4.2	0.2	2	99.0	0.06	0.00	0.00	0.00	360	-270
1.000	11.0	3.0	5.7	0.8	2	54.7	0.10	0.09	17.10	1.46	360	-270
1.000	11.0	0.0	5.7	0.2	2	80.7	0.07	0.00	0.00	0.00	360	-270
1.000	14.0	3.0	6.8	0.8	5	30.6	0.38	0.24	20.40	4.94	360	-270
1.000	14.0	0.0	6.8	0.2	2	50.0	0.11	0.00	0.00	0.00	360	-270
1.000	17.0	3.0	8.4	0.8	5	25.1	0.46	0.51	25.20	12.97	360	-270
1.000	17.0	0.0	8.4	0.2	5	19.9	0.57	0.00	0.00	0.00	360	-270
1.000	20.0	3.0	9.3	0.8	5	18.1	0.63	0.66	27.90	18.38	360	-270
1.000	20.0	0.0	9.3	0.2	5	16.4	0.69	0.00	0.00	0.00	360	-270
1.000	23.0	3.0	9.9	0.8	5	19.6	0.58	0.66	29.70	19.66	360	-270
1.000	23.0	0.0	9.9	0.2	10	30.4	0.74	0.00	0.00	0.00	360	-270
1.000	26.0	3.0	11.3	0.8	10	37.9	0.60	0.71	33.90	24.21	360	-270
1.000	26.0	0.0	11.3	0.2	10	27.2	0.83	0.00	0.00	0.00	360	-270
1.000	29.0	3.0	12.2	0.8	10	36.6	0.62	0.68	36.60	24.83	360	-270
1.000	29.0	0.0	12.2	0.2	10	30.7	0.74	0.00	0.00	0.00	360	-270
1.000	32.0	3.0	11.4	0.8	10	39.6	0.57	0.65	34.20	22.38	360	-270
1.000	32.0	0.0	11.4	0.2	10	30.8	0.73	0.00	0.00	0.00	360	-270
1.000	35.0	3.0	11.1	0.8	5	27.8	0.41	0.48	33.30	15.94	360	-270
1.000	35.0	0.0	11.1	0.2	10	42.0	0.54	0.00	0.00	0.00	360	-270
1.000	38.0	3.0	10.7	0.8	7	43.3	0.37	0.46	32.10	14.85	360	-270
1.000	38.0	0.0	10.7	0.2	10	41.4	0.55	0.00	0.00	0.00	360	-270
1.000	41.0	3.0	10.0	0.8	10	48.8	0.47	0.46	30.00	13.85	360	-270
1.000	41.0	0.0	10.0	0.2	5	25.3	0.45	0.00	0.00	0.00	360	-270
1.000	44.0	3.0	9.5	0.8	5	28.0	0.41	0.45	28.50	12.93	360	-270
1.000	44.0	0.0	9.5	0.2	5	23.1	0.50	0.00	0.00	0.00	360	-270
1.000	47.0	3.0	9.4	0.8	5	36.7	0.32	0.36	28.20	10.16	360	-270
1.000	47.0	0.0	9.4	0.2	5	28.7	0.40	0.00	0.00	0.00	360	-270
1.000	50.0	3.0	9.1	0.8	5	41.8	0.28	0.24	27.30	6.68	360	-270
1.000	50.0	0.0	9.1	0.2	5	58.2	0.21	0.00	0.00	0.00	360	-270
1.000	53.0	3.0	9.2	0.8	2.0	71.9	0.08	0.10	27.60	2.82	360	-270
1.000	53.0	0.0	9.2	0.2	3.0	61.9	0.12	0.00	0.00	0.00	360	-270
1.000	56.0	3.0	7.6	0.8	3.0	39.8	0.18	0.14	22.80	3.14	360	-270
1.000	56.0	0.0	7.6	0.2	2.0	60.2	0.09	0.00	0.00	0.00	360	-270
1.000	59.0	3.0	6.1	0.8	2.0	30.8	0.16	0.09	18.30	1.71	360	-270
0.174	59.0	0.0	6.1	0.2	5.0	85.2	0.03	0.00	0.00	0.00	280	-190
1.000	62.0	3.0	4.9	0.8	5.0	43.4	0.27	0.02	14.70	0.35	360	-270
-0.866	62.0	0.0	4.9	0.2	5.0	45.8	-0.22	0.00	0.00	0.00	210	-120
1.000	65.0	3.0	4.7	0.8	2.0	28.0	0.18	0.16	14.10	2.33	360	-270
0.940	65.0	0.0	4.7	0.2	5.0	75.3	0.15	0.00	0.00	0.00	340	-250
1.000	68.0	3.0	3.6	0.6	1.0	46.0	0.07	0.07	10.80	0.71	360	-270
0.500	68.0	0.0	3.6	0.6	1.0	35.0	0.04	0.04	0.00	0.00	300	-210
1.000	71.0	3.0	2.9	0.6	0.0	0.0	0.00	0.00	8.70	0.00	360	-270
-0.940	74.0	3.0	2.0	0.6	3.0	85.0	-0.09	-0.09	6.00	-0.54	200	-110
	75.0											
550.50										219.19		

WDM5_12-12-02 (TRIP 4)

WDM5_12-12-02 (TRIP 4)												
Gage = 11.90' at 10:15												
W = 110'												
C	Dist	w (ft)	d (ft)	%	Rev	Time	V	Vc	a (sq ft)	q (cfs)	Flow Dir	Corr
factor	from			depth		(sec)	(ft/s)	(ft/s)			(deg)	Flow Dir
	IP											(deg)
	0.0											
1.000	4.5	4.5	0.75	0.6	0	0.0	0.00	0.00	3.38	0.00	360	-270
1.000	9.0	4.5	1.75	0.6	0	0.0	0.00	0.00	7.88	0.00	360	-270
1.000	13.5	4.5	2.00	0.6	19	51.3	0.39	0.39	9.00	3.48	360	-270
1.000	18.0	4.5	2.80	0.6	10	27.8	0.38	0.38	12.60	4.74	360	-270
1.000	22.5	4.5	3.30	0.6	15	41.9	0.37	0.37	14.85	5.56	360	-270
1.000	27.0	4.5	3.80	0.6	10	26.9	0.39	0.39	17.10	6.63	360	-270
1.000	31.5	4.5	3.90	0.6	10	26.8	0.39	0.39	17.55	6.83	360	-270
1.000	36.0	4.5	3.90	0.6	10	25.9	0.40	0.40	17.55	7.05	360	-270
1.000	40.5	4.5	3.80	0.6	10	26.8	0.39	0.39	17.10	6.66	360	-270
1.000	45.0	4.5	3.70	0.6	10	26.0	0.40	0.40	16.65	6.66	360	-270
1.000	49.5	4.5	3.50	0.6	10	29.6	0.36	0.36	15.75	5.60	360	-270
1.000	54.0	4.5	3.25	0.6	10	26.9	0.39	0.39	14.63	5.67	360	-270
1.000	58.5	4.5	3.00	0.6	10	25.7	0.40	0.40	13.50	5.46	360	-270
1.000	63.0	4.5	2.70	0.6	10	26.2	0.40	0.40	12.15	4.83	360	-270
1.000	67.5	4.5	2.30	0.6	10	27.1	0.39	0.39	10.35	3.99	360	-270
1.000	72.0	4.5	2.05	0.6	10	26.8	0.39	0.39	9.23	3.59	360	-270
1.000	76.5	4.5	1.80	0.6	10	26.3	0.40	0.40	8.10	3.21	360	-270
1.000	81.0	4.5	1.70	0.6	10	28.2	0.37	0.37	7.65	2.84	360	-270
1.000	85.5	4.5	1.66	0.6	10	27.7	0.38	0.38	7.47	2.82	360	-270
1.000	90.0	4.5	1.60	0.6	10	27.2	0.38	0.38	7.20	2.76	360	-270
1.000	94.5	4.5	1.30	0.6	10	31.2	0.34	0.34	5.85	1.98	360	-270
1.000	99.0	4.5	1.28	0.6	10	35.7	0.30	0.30	5.76	1.73	360	-270
1.000	103.5	4.5	1.15	0.6	10	41.4	0.26	0.26	5.18	1.36	360	-270
1.000	108.0	4.5	0.82	0.6	5	32.9	0.18	0.18	3.69	0.65	360	-270
	110.0											
260.15										94.11		

WWDI4_9-12-02 (TRIP 1)

WWDI4_9-12-02 (TRIP 1)										
Gage = 10.62' at 9:00										
W = 22'										
C	Dist from w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	
factor	IP				(sec)					
	0.0									
1	1.0	1.0	0.08	0.6	0	40	0.00	0.00	0.08	0.00
1	2.0	1.0	0.10	0.6	0	40	0.00	0.00	0.10	0.00
1	3.0	1.0	0.11	0.6	5	40	0.15	0.15	0.11	0.02
1	4.0	1.0	0.15	0.6	7	40	0.20	0.20	0.15	0.03
1	5.0	1.0	0.15	0.6	6	40	0.18	0.18	0.15	0.03
1	6.0	1.0	0.14	0.6	8	40	0.22	0.22	0.14	0.03
1	7.0	1.0	0.16	0.6	7	40	0.20	0.20	0.16	0.03
1	8.0	1.0	0.20	0.6	9	40	0.25	0.25	0.20	0.05
1	9.0	1.0	0.22	0.6	7	40	0.20	0.20	0.22	0.04
1	10.0	1.0	0.21	0.6	9	40	0.25	0.25	0.21	0.05
1	11.0	1.0	0.21	0.6	8	40	0.22	0.22	0.21	0.05
1	12.0	1.0	0.23	0.6	12	40	0.32	0.32	0.23	0.07
1	13.0	1.0	0.26	0.6	9	40	0.25	0.25	0.26	0.06
1	14.0	1.0	0.28	0.6	9	40	0.25	0.25	0.28	0.07
1	15.0	1.0	0.25	0.6	7	40	0.20	0.20	0.25	0.05
1	16.0	1.0	0.25	0.6	8	40	0.22	0.22	0.25	0.06
1	17.0	1.0	0.29	0.6	7	40	0.20	0.20	0.29	0.06
1	18.0	1.0	0.24	0.6	9	40	0.25	0.25	0.24	0.06
1	19.0	1.0	0.22	0.6	7	40	0.20	0.20	0.22	0.04
1	20.0	1.0	0.20	0.6	7	40	0.20	0.20	0.20	0.04
1	21.0	1.0	0.19	0.6	4	40	0.13	0.13	0.19	0.02
	22.0									
									4.14	0.86

WWDI4_10-8-02 (TRIP 2)

WWDI4_10-8-02 (TRIP 2)										
Gage = 11.89' at 12:30										
W = 59'										
C	Dist from w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	
factor	IP				(sec)					
	0.0									
1	2.4	2.4	1.13	0.6	30	45.3	0.67	0.67	2.71	1.81
1	4.8	2.4	1.68	0.6	30	28.7	1.03	1.03	4.03	4.17
1	7.2	2.4	1.78	0.6	30	30.6	0.97	0.97	4.27	4.15
1	9.6	2.4	1.59	0.6	30	23.4	1.26	1.26	3.82	4.81
1	12.0	2.4	1.44	0.6	30	19.1	1.54	1.54	3.46	5.32
1	14.4	2.4	1.62	0.6	30	20.7	1.42	1.42	3.89	5.53
1	16.8	2.4	1.78	0.6	30	18.9	1.55	1.55	4.27	6.64
1	19.2	2.4	1.83	0.6	30	18.0	1.63	1.63	4.39	7.16
1	21.6	2.4	1.55	0.6	30	22.4	1.32	1.32	3.72	4.90
1	24.0	2.4	1.41	0.6	30	21.4	1.38	1.38	3.38	4.66
1	26.4	2.4	1.20	0.6	30	20.6	1.43	1.43	2.88	4.12
1	28.8	2.4	1.35	0.6	30	27.7	1.07	1.07	3.24	3.47
1	31.2	2.4	1.08	0.6	30	23.6	1.25	1.25	2.59	3.24
1	33.6	2.4	0.70	0.6	30	23.1	1.28	1.28	1.68	2.15
1	36.0	2.4	0.54	0.6	30	23.5	1.26	1.26	1.30	1.63
1	38.4	2.4	0.40	0.6	30	21.8	1.35	1.35	0.96	1.30
1	40.8	2.4	0.36	0.6	30	23.1	1.28	1.28	0.86	1.10
1	43.2	2.4	0.37	0.6	30	24.9	1.19	1.19	0.89	1.05
1	45.6	2.4	0.41	0.6	30	28.7	1.03	1.03	0.98	1.02
1	48.0	2.4	0.40	0.6	30	31.9	0.93	0.93	0.96	0.90
1	50.4	2.4	0.41	0.6	30	37.4	0.80	0.80	0.98	0.79
0.98	52.8	2.4	0.41	0.6	30	41.0	0.73	0.72	0.98	0.69
0.98	55.2	2.4	0.45	0.6	30	40.2	0.75	0.73	1.08	0.78
0.98	57.6	2.4	0.25	0.6	15	30.8	0.50	0.49	0.60	0.29
	59.0									
									57.94	71.68

WWDI4_10-31-02 (TRIP 3)

WWDI4_10-31-02 (TRIP 3)										
Gage = 11.29' at 14:00										
W = 53'										
C	Dist from w	d	%depth	Rev	Time	V	Vc	a	q	
factor	IP	(ft)	(ft)		(sec)	(ft/s)	(ft/s)	(sq ft)	(cfs)	
	0.0									
1	2.1	2.1	1.20	0.6	20	31.2	0.65	0.65	2.52	1.63
1	4.2	2.1	1.10	0.6	20	26.2	0.76	0.76	2.31	1.76
1	6.3	2.1	1.05	0.6	20	24.9	0.80	0.80	2.21	1.77
1	8.4	2.1	0.81	0.6	20	27.4	0.73	0.73	1.70	1.24
1	10.5	2.1	0.60	0.6	20	26.5	0.76	0.76	1.26	0.95
1	12.6	2.1	0.65	0.6	20	25.9	0.77	0.77	1.37	1.05
1	14.7	2.1	0.68	0.6	20	25.8	0.78	0.78	1.43	1.11
1	16.8	2.1	0.70	0.6	20	20.5	0.97	0.97	1.47	1.42
1	18.9	2.1	0.70	0.6	20	21.7	0.92	0.92	1.47	1.35
1	21.0	2.1	0.80	0.6	20	18.9	1.05	1.05	1.68	1.76
1	23.1	2.1	0.80	0.6	20	20.1	0.99	0.99	1.68	1.66
1	25.2	2.1	0.78	0.6	20	20.5	0.97	0.97	1.64	1.58
1	27.3	2.1	0.80	0.6	20	18.3	1.08	1.08	1.68	1.81
1	29.4	2.1	0.80	0.6	20	15.8	1.25	1.25	1.68	2.09
1	31.5	2.1	0.80	0.6	20	14.6	1.35	1.35	1.68	2.26
1	33.6	2.1	0.80	0.6	20	14.9	1.32	1.32	1.68	2.22
1	35.7	2.1	0.85	0.6	20	14.9	1.32	1.32	1.79	2.36
1	37.8	2.1	0.84	0.6	20	14.8	1.33	1.33	1.76	2.34
1	39.9	2.1	0.80	0.6	20	17.6	1.12	1.12	1.68	1.88
1	42.0	2.1	0.80	0.6	20	19.6	1.01	1.01	1.68	1.70
1	44.1	2.1	0.72	0.6	20	19.7	1.01	1.01	1.51	1.52
1	46.2	2.1	0.60	0.6	20	22.5	0.88	0.88	1.26	1.11
1	48.3	2.1	0.45	0.6	20	39.6	0.52	0.52	0.94	0.49
1	50.4	2.1	0.12	0.6	0	0.0	0.00	0.00	0.25	0.00
	53.0									
									38.33	37.08

WWDI4_11-14-02 (TRIP 4)

WWDI4_11-14-02 (TRIP 4)										
Gage = 11.13' at 12:00										
W = 51'										
C	Dist from w (ft)	d (ft)	%depth	Rev	Time	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)	
factor	IP				(sec)					
	0.0									
1	2.0	2.0	1.14	0.6	15	33.5	0.46	0.46	2.28	1.05
1	4.0	2.0	0.98	0.6	20	39.1	0.52	0.52	1.96	1.02
1	6.0	2.0	0.75	0.6	20	31.9	0.63	0.63	1.50	0.95
1	8.0	2.0	0.48	0.6	20	24.9	0.80	0.80	0.96	0.77
1	10.0	2.0	0.49	0.6	20	34.9	0.58	0.58	0.98	0.57
1	12.0	2.0	0.47	0.6	20	30.3	0.66	0.66	0.94	0.62
1	14.0	2.0	0.49	0.6	20	23.4	0.85	0.85	0.98	0.83
1	16.0	2.0	0.57	0.6	20	33.4	0.61	0.61	1.14	0.69
1	18.0	2.0	0.52	0.6	20	27.8	0.72	0.72	1.04	0.75
1	20.0	2.0	0.60	0.6	20	26.8	0.75	0.75	1.20	0.90
1	22.0	2.0	0.65	0.6	20	24.7	0.81	0.81	1.30	1.05
1	24.0	2.0	0.58	0.6	20	22.9	0.87	0.87	1.16	1.01
1	26.0	2.0	0.62	0.6	20	25.7	0.78	0.78	1.24	0.96
1	28.0	2.0	0.62	0.6	20	22.3	0.89	0.89	1.24	1.11
1	30.0	2.0	0.61	0.6	20	19.9	1.00	1.00	1.22	1.21
1	32.0	2.0	0.59	0.6	20	20.8	0.95	0.95	1.18	1.13
1	34.0	2.0	0.58	0.6	20	18.1	1.09	1.09	1.16	1.27
1	36.0	2.0	0.60	0.6	20	17.8	1.11	1.11	1.20	1.33
1	38.0	2.0	0.60	0.6	20	17.9	1.10	1.10	1.20	1.32
1	40.0	2.0	0.60	0.6	20	21.9	0.91	0.91	1.20	1.09
1	42.0	2.0	0.60	0.6	20	24.8	0.81	0.81	1.20	0.97
1	44.0	2.0	0.55	0.6	20	25.6	0.78	0.78	1.10	0.86
1	46.0	2.0	0.49	0.6	20	39.9	0.51	0.51	0.98	0.50
1	48.0	2.0	0.28	0.6	10	27.4	0.38	0.38	0.56	0.21
	51.0									
									28.92	22.18